SCALFONE LAW PLLC
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January 16, 2014

Steven E. Perrigo, P.E. (VIA EMAIL ONLY to seperrig@gw.dec.state.ny.us)
Environmental Engineer 2, NYSDEC - Region 7
Division of Materials Management

Timothy I. DiGiulio, P.E. (VIA EMAIL ONLY to txdigiul@gw.dec.state.ny.us)
Materials Management Supervisor, NYSDEC - Region 7
Division of Materials Management

Re: Petition for a Case-Specific Beneficial Use Determination (BUD) Pursuant to 6 NYCRR 360-1.15(d), 6259 Thompson Road, Syracuse, NY 13206

Mr. Perrigo and Mr. DiGiulio,

Enclosed please find Northern Industrial Holding LLC's BUD Application to use the former Oberdorfer foundry sand on-site as subgrade fill, to be covered by an impervious surface as a development site.

Thank you for your attention to this matter and please contact me should you have any questions.

Very Truly Yours,

Melody Scalfone
Environmental Counsel for Northern Industrial Holdings LLC

CC:

Sally Rowland, PhD, PE (VIA EMAIL ONLY to benuse@gw.dec.state.ny.us)
Bureau of Waste Reduction & Recycling, Division of Materials Management
NYS DEC
625 Broadway, 9th Floor
Albany, NY 12233-7253

Jennifer Powell, Esq. (VIA EMAIL ONLY to jxpowell@gw.dec.state.ny.us)
Assistant Regional Attorney, DEC Region 7

Cover Sheets to Petition for a Case-Specific Beneficial Use Determination (BUD)
Pursuant to 6 NYCRR 360-1.15(d)
(Please attach pages as needed)

1. Name of Company
Northern Industrial Holdings LLC

2. Company Mailing Address
7377 East Doubletree Ranch Road
Suite 190
Scottsdale, Arizona 85258

3. Contact Person and Title
Melody Scalfone, Esq., Environmental Counsel

4. Contact Phone and Email
315-254-5119 scalfone@scalfonelaw.com

5. Signature of Responsible Company Official and Date
1/16/2019

6. Location where solid waste will be generated (if in New York State, include the county)
6259 Thompson Rd, Syracuse, NY 13206, County of Onondaga

7. Location(s) in New York State where solid wastes will be beneficially used, by county
6259 Thompson Rd, Syracuse, NY 13206, County of Onondaga

8 Brief description of Solid Waste
Foundry sand

9. Brief description of Proposed Beneficial Use
Subgrade fill at proposed impervious surface locations

10. Maximum estimate quantity of solid waste to be used, in tons, cubic yards or by count:
16,000 tons

11. Describe procedures to ensure no hazardous waste will be accepted (360-1.1(b)):

Along with the waste characterization results provided in Appendices D & E, a Solid Waste Control Plan has been provided in Appendix C to demonstrate that the management of the foundry sand will not adversely affect human health and safety, the environment and natural resources.

12. Explain how will the solid waste be beneficially used in a manufacturing process to make a product or as an effective substitute for a commercial product? (360-1.15(d)(1))

The sand will be used on-site as stable fill, covered by impervious surfaces. The use of this material will significantly reduce costs for the developer and will provide environmental benefits by recycling waste material that would otherwise be disposed of. The material will be diverted from landfills, the least preferable waste disposal method, as described in NYS' Solid Waste Management Policy.

13. Chemical and physical characteristics of the solid waste: (*attach laboratory reports, as appropriate*)

Approximately 16,000 tons of stockpiled foundry sands are currently located at the foerm Oberdorfer facility in Syracuse, New York. The facility is no longer active, the property has been sold to a developer, and no sand has been added to the pile in several years. A byproduct of the aluminum casting process, the sands currently stockpiled are in six (6) piles, labeled A through F, of varying sizes located on the western and southwestern portions of the Oberdorfer property. A Property Location Plan (Figure 1) and Aerial Property Plan of the Oberdorfer facility and foundry sand pile locations (Figure 2) are attached hereto. [continued]

14. Chemical and physical characteristics of the proposed product: (*attach laboratory reports, as appropriate*)

Atlantic Testing Laboratories conducted testing that demonstate that the sand can be used as stable subgrade fill. Atlantic Testing's report is provided as Appendix F. SWBR Architects & Engineers PC then incorporated Atlantic Testing’s analysis into the proposed development plans, demonstrating that 100% of the sand can be used on site. SWBR’s analysis is attached as Appendix G and the proposed development plans are provided as Appendix H.

15. Demonstrate a known or reasonably probable market for the solid waste or product (*see 360-1.15(d)(1) (iii) for acceptable types of documentation*):

N/A; the material will be used on-site; no off-site disposal required.

16. Demonstrate that the management of the solid waste under review will not adversely affect human health and safety, the environment and natural resources by providing:

a) Solid Waste Control Plan (see 360-1.15(d)(1)(iv)(a):

See Attached Appendix C

b) Contingency Plan (see 360-1.15(d)(1)(iv)(b) and 360-1.9(h)):

Northern Industrial Holdings will submit a Contingency Plan when the contractor has been identified.

17. Does this solid waste require decontamination, special handling or processing before beneficial use? (360-1.15(d)(2)(iv) and 360-1.7(b)(4)) Yes ☐ No ☑

If Yes, be aware other authorization under 6 NYCRR Part 360, including a facility registration or permit, may be necessary for these activities. A BUD may not be granted until all other NYS facility authorizations are valid.

18. Use this area, or attach sheets, to include internet links, copies, or citations of any documents you wish to support your petition. Such documents include but are not limited to academic research papers; journal or magazine articles; and BUDs, permits, or other types of approvals for this solid waste in this beneficial use in other states or countries.

FOIL247602

13. [con’t]

During the casting process, the sands were mixed with polymers and a catalyst at a ratio of 1.125% by weight and molded under heat and pressure to form cavities for the casting process. More specifically, the following materials were utilized in the process: Isocure X II 674, PEP SET 3635 Catalyst, PEP SET I 1670-E Binder, and PEP SEP II 2670-E Binder. The material safety data sheets (MSDS) for these materials and the sand itself utilized in the process, Crystalline Silica (quartz), are provided in Appendix A.

Molten aluminum was then poured into the cavities formed. After the castings were cooled, the sands were knocked out and removed as waste. The Process Flow Chart and Process Specifications for producing sand cores are provided in Appendix B.

In their stockpiled state, the sands are not of uniform size and currently contain some debris. As a result, screening and crushing of the stockpiled sands will be necessary prior to reuse.

On August 3, 2011, seventeen (17) composite soil samples (SS-1 through SS-17) were collected from the stockpiled foundry sands. One soil sample was collected per 1,000 tons of foundry sand, plus a duplicate sample (SS-17) was collected for Quality Assurance/Quality Control (QC/QC) purposes. Samples SS-1 through SS-8 were collected from Pile A, SS-9 was collected from Pile B, SS-10 through SS-12 were collected from Pile C, SS-13 was collected from Pile D, SS-14 and SS-15 were collected from Pile D, and SS-16 and SS-17 were collected from Pile F.

Pursuant to NYSDEC requirements, all soil samples were sent for laboratory analysis and tested for semi-volatile organics and the RCRA metals (antimony, arsenic, barium, beryllium, cadmium, total chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc) plus aluminum, cobalt and copper. The samples were not tested for TCLP parameters because Oberdorfer has no reason to believe that the foundry sands are potentially hazardous.

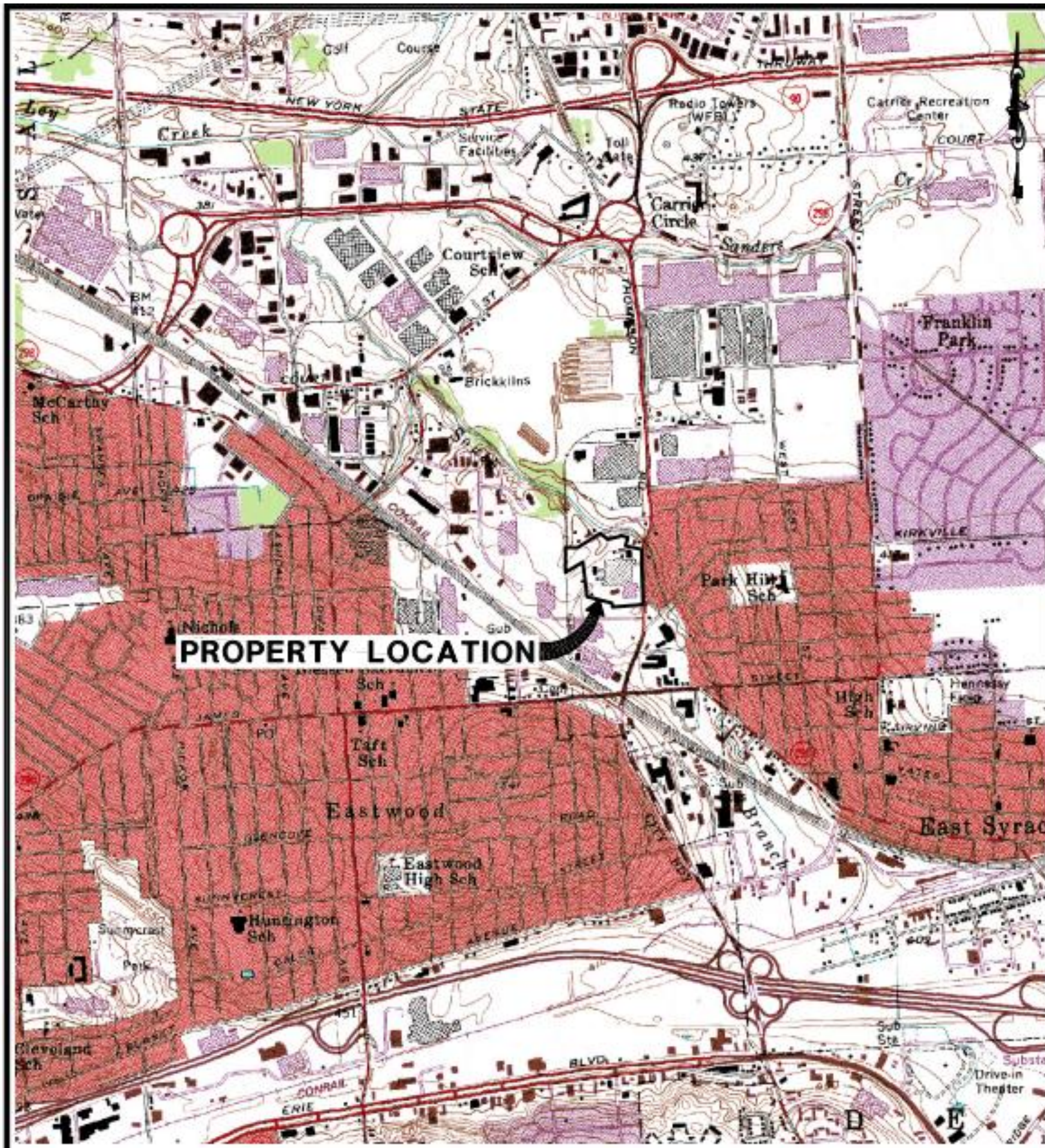
Laboratory analytical results identified that concentrations of parameters analyzed for from the stockpiled foundry sands at concentrations less than 6 NYCRR Part 375 Restricted Commercial Soil Cleanup Objectives, with the exception of one area (sands in the vicinity of SS-1). A copy of the laboratory analytical report (Appendix D) and tables summarizing the analytical data results for metals (Table 1) and semi-volatile organics (Table 2) are attached hereto.

One soil sample, SS-1, contained concentrations of copper and benzo(a)pyrene greater than the above-referenced soil cleanup objective. Given the analytical results for sample SS-1, foundry sands stockpiled in the vicinity of the SS-1 sampling location, specifically, the sands at the SS-2 sampling location through the northeast end of Pile A, will not be reused under this BUD application.

In order to define the boundary of SS-1, Northern Industrial performed additional sampling to ensure that the SS-1 sands would not be included in this BUD application. A copy of the laboratory analytical report (Appendix E) and tables summarizing the analytical data results for metals (Table 3) and semi-volatile organics (Table 4) are attached hereto. The results of this test revealed concentrations substantially the same as the sands proposed for reuse under this BUD application. The sample site was 25 feet from the end of Pile A.

Based on the results of the solid waste characterization activities describe herein, it is proposed the foundry sands located in Piles B, C, D, E and F and the sands from SS-2 to the southern end of Pile A, be acceptable for reuse under this BUD application.

Further analytical testing activities are not necessary given that no new materials are being added to the piles. Foundry sands produced during operations over the past several years have been disposed of off-site. Further characterization, if required, shall be conducted in accordance with the attached Solid Waste Control Plan, provided in Appendix C.



SOURCE: USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLE –
SYRACUSE EAST, N.Y., 1957, PHOTOREVISED 1978.

GRAPHIC SCALE:

0 2000' 4000'

P: EPA
8/15/12
SYNAPSE/WP/OBER 01-10/OBERSL2.DWG

FIGURE NO.:
1

LEGEND

APPROXIMATE PROPERTY LINE

SS-1 ▲ COMPOSITE SOIL SAMPLE LOCATION

NOTES:

1. 2009 AERIAL PHOTOGRAPH FROM NYSGIS WEBSITE.
2. ALL LOCATIONS ARE APPROXIMATE.

0 120' 240'

GRAPHIC SCALE

FIGURE NO.:
2

FOIL247606

TABLE 1
Summary of Analytical Results
Metals
6259 Thompson Road, East Syracuse, New York

SAMPLE ID	NYSDEC Part 375	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	081311-DUP-1
SAMPLE DATE	Restricted Commercial	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011
SAMPLE DEPTH	Soil Cleanup Objectives	2'-4'	0'-2'	7'-8'	14'-15'	9'-10'	0'-2'	3'-4'	5'-6'	3'-4'	5'-6'	11'-12'	0-2'	0'-2'	2'-4'	5'-6'	2'-4'	5'-6'
LOCATION		Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile B	Pile C	Pile C	Pile C	Pile D	Pile E	Pile E	Pile E	Pile F
UNITS	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)
TARGET COMPOUNDS METALS																		
ALUMINUM	NS	**36800**	1020	2650	3030	2920	1580	1320	1260	4390	370	1610	867	472	3600	8850	1340	7930
ANTIMONY	NS	0.76	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
ARSENIC	16	U	U	0.54	0.58	0.77	0.82	U	0.41	U	U	U	0.48	U	0.51	0.45	U	0.55
BARIUM	400	8.4	12.2	13.1	12.5	13.1	7.8	7.8	21.1	3.2	4.6	13.1	18.0	4.1	8.4	12.5	12.2	11.6
BERYLLIUM	590	0.21	U	U	0.042	U	0.029	U	0.035	U	U	U	0.035	U	U	0.059	0.041	U
CADMIUM	9.3	0.17	U	0.061	0.046	0.045	0.037	0.052	0.062	0.029	U	0.061	0.035	U	0.039	0.081	0.049	0.078
CHROMIUM, TOTAL	1,500	204	1.4	13.1	36.8	25.5	23.5	31.0	4.7	0.93	0.88	7.2	1.8	0.49	19.6	14.8	2.8	4.6
COBALT	NS	3.8	0.13	0.57	0.70	0.91	0.86	0.51	0.27	0.30	0.088	0.34	0.21	U	0.37	0.61	0.28	0.31
COPPER	270	**1760**	9.8	48.0	112	78.3	41.7	19.1	28.8	44.3	5.0	53.9	5.1	3.3	79.7	114	31.5	78.9
LEAD	1000	14.4	0.82	1.9	3.6	1.2	2.1	1.2	2.9	1.1	0.65	4.2	0.81	0.67	1.3	3.5	2.8	2.6
NICKEL	310	**860**	2.9	18.9	51.9	34.3	17.5	20.5	7.8	2.9	1.9	18.8	2.1	0.76	24.5	37.3	6.4	22.7
THALLIUM	NS	0.41	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0.36
VANADIUM	NS	5.5	0.40	1.5	1.9	2.1	1.8	0.83	0.76	0.84	0.20	0.96	0.99	0.19	1.2	1.2	0.78	0.99
ZINC	10,000	97.1	6.8	9.8	15.6	9.5	15.6	10.6	12.1	7.7	3.5	18.8	5.2	3.6	7.6	17.6	13.1	13.7

Notes:
1. NYCRR Part 375 Unrestricted and Restricted Use Soil Cleanup Objectives.
2. CP-51 Residential and Protection of Ecological Resources Supplemental Soil Cleanup Objectives.
3. mg/kg = milligrams per kilogram approximately equivalent to parts per million.
4. NS = No Standard or Guidance
5. U = Analyte was analyzed for but not detected above the reporting limit.
6. Bolded cells indicate that the concentration is above the Restricted Commercial (Part 375) Use Soil Cleanup Objectives.

TABLE 2
Summary of Soil Analytical Results
Semi-volatile Organic Compounds
6259 Thompson Road, East Syracuse, New York

SAMPLE ID	NYSDEC Part 375	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	081311-DUP-1
SAMPLE DATE	Restricted Commercial	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011
SAMPLE DEPTH	Soil Cleanup Objectives	2'-4'	0'-2'	7'-8'	14'-15'	9'-10'	0'-2'	3'-4'	5'-6'	3'-4'	5'-6'	11'-12'	0-2'	0'-2'	2'-4'	5'-6'	2'-4'	5'-6'
LOCATION		Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile A	Pile B	Pile C	Pile C	Pile C	Pile D	Pile E	Pile E	Pile E	Pile F
UNITS	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)	(MG/KG)
TARGET COMPOUNDS SVOCs																		
2-METHYLNAPHTHALENE	NA	0.530 J	2	1.8	1.6	0.89	2	0.92	1.1 J	2.1	0.620 J	2.1	2.3	0.840 J	0.650 J	6	1.3	5.7
ACENAPHTHENE	500	0.140 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
ACENAPHTHYLENE	500	0.260 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
ANTHRACENE	500	0.400 J	0.012 J	0.056 J	0.038 J	0.012 J	0.016 J	U	U	U	U	U	U	U	U	U	U	U
BENZO(A)ANTHRACENE	5.6	1.4	.0098 J	0.140 J	0.100 J	0.015 J	0.024 J	0.049 J	0.110 J	0.051 J	0.042 J	0.050 J	0.063 J	0.034 J	U	0.180 J	0.077 J	0.370 J
BENZO(A)PYRENE	1	**1.4**	U	0.110 J	0.110 J	U	U	0.042 J	0.110 J	U	0.028 J	0.063 J	U	0.030 J	0.038 J	0.180 J	0.083 J	0.420 J
BENZO(B)FLUORANTHENE	5.6	1.7	U	0.150 J	0.120 J	U	0.024 J	0.041 J	0.110 J	0.044 J	0.035 J	0.086 J	0.077 J	0.035 J	0.030 J	0.250 J	0.074 J	0.430 J
BENZO(G,H,I)PERYLENE	500	0.94	U	0.071 J	0.084 J	0.016 J	0.026 J	0.053 J	0.094 J	0.051 J	0.033 J	0.065 J	0.063 J	0.029 J	0.030 J	0.150 J	0.120 J	0.470 J
BENZO(K)FLUORANTHENE	56	1.1	U	0.053 J	0.078 J	U	0.022 J	0.058 J	0.100 J	0.043 J	0.035 J	0.055 J	0.065 J	0.026 J	U	0.150 J	0.062 J	0.250 J
BIPHENYL (DIPHENYL)	NA	U	0.036 J	0.055 J	0.038 J	0.036 J	0.086 J	U	U	0.110 J	U	0.060 J	0.150 J	U	U	0.320 J	0.059 J	0.320 J
BIS(2-ETHYLHEXYL) PHTHALATE	NA	U	0.17	0.32	0.27	0.31	0.49	0.430 J	U	0.550 J	U	0.570 J	U	U	0.840 J	U	0.470 J	U
CARBAZOLE	NA	0.310 J	U	0.049 J	0.026 J	U	0.041 J	U	U	U	U	U	U	U	U	U	U	U
CHRYSENE	56	1.9	0.0083 J	0.150 J	0.110 J	0.021 J	0.032 J	0.046 J	0.100 J	0.035 J	0.026 J	0.089 J	0.047 J	0.027 J	0.036 J	0.260 J	0.095 J	0.540 J
DIBENZ(A,H)ANTHRACENE	0.56	0.300 J	U	0.020 J	0.022 J	U	U	0.036 J	0.080 J	U	0.037 J	0.041 J	0.056 J	0.027 J	0.043 J	0.068 J	0.098 J	0.470 J
DIBENZOFURAN	NA	0.170 J	U	U	0.022 J	U	U	U	U	U	U	U	U	U	U	U	U	U
DI-N-BUTYL PHTHALATE	NA	U	U	U	U	U	0.060 J	U	U	U	U	U	U	U	U	U	U	U
DI-N-OCTYLPHTHALATE	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
FLUORANTHENE	500	4.5	0.017 J	0.34	0.24	0.039 J	0.055 J	U	0.120 J	U	U	0.085 J	U	U	U	0.590 J	0.072 J	0.620 J
FLUORENE	500	0.170 J	0.066 J	0.120 J	0.061 J	0.052 J	0.140 J	U	U	U	U	U	0.200 J	0.110 J	U	U	0.100 J	U
INDENO(1,2,3-C,D)PYRENE	5.6	0.93	U	0.066 J	0.075 J	0.011 J	0.020 J	0.053 J	0.110 J	0.042 J	0.034 J	0.064 J	0.069 J	0.029 J	0.036 J	0.150 J	0.130 J	0.550 J
NAPHTHALENE	500	0.740 J	1.7	2.1	2.1	1.4	1.9	2.8	4.1	0.6 J	1.9	3.2	4.8	2.4	2.3	9	2.6	6.4
PHENANTHRENE	500	2.9	0.029 J	0.21	0.140 J	0.031 J	0.044 J	0.041 J	0.100 J		0.024 J	0.067 J	0.046 J	U	0.042 J	0.410 J	0.055 J	0.530 J
PHENOL	500	1.9	11 E	14 E	8 E	6.2 E	9.1 E	11 E	16	10	9.3	8.7	21	12	15	40	8.6	37
PYRENE	500	3.5	0.015 J	0.26	0.2	0.041 J	U	U	0.130 J	U	U	0.090 J	U	U	U	0.440 J	0.078 J	0.420 J

Notes:
1. NYCRR Part 375 Unrestricted and Restricted Use Soil Cleanup Objectives.
2. CP-51 Residential and Protection of Ecological Resources Supplemental Soil Cleanup Objectives.
3. mg/kg = milligrams per kilogram approximately equivalent to parts per million.
4. NS = No Standard or Guidance
5. U = Analyte was analyzed for but not detected above the reporting limit.
6. Bolded cells indicate that the concentration is above the Restricted Commercial (Part 375) Use Soil Cleanup Objectives.

Pace Analytical®

Analytical Sample Results

Job Number: 13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: PILE A - NORTHEAST AREA
Lab Sample ID: 13110648-01 (AQ41377)

Collection Date: 11/26/2013 14:30
Sample Matrix: SOIL
Received Date: 11/27/2013 09:54
Percent Solid: 94.8 - Results are based on dry weight unless otherwise noted.

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-56	SW-846 6010C	12/04/2013 18:45	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:39	CYC	0.507 g	50.0 mL	NA

Analyte	CAS No.	Result (mg/kg)	PQL	Dilution Factor	Flags	File ID
Aluminum	7429-90-5	**1230**	5.20	1.00		ICP2-871-56
Antimony	7440-36-0	**0.528**	0.520	1.00	B	ICP2-871-56
Arsenic	7440-38-2	ND	0.520	1.00	U	ICP2-871-56
Barium	7440-39-3	**7.07**	0.520	1.00		ICP2-871-56
Beryllium	7440-41-7	ND	0.416	1.00	U	ICP2-871-56
Cadmium	7440-43-9	ND	0.416	1.00	U	ICP2-871-56
Chromium	7440-47-3	**2.48**	0.520	1.00		ICP2-871-56
Cobalt	7440-48-4	ND	0.520	1.00	U	ICP2-871-56
Copper	7440-50-8	**17.9**	0.520	1.00		ICP2-871-56
Lead	7439-92-1	**1.67**	0.520	1.00		ICP2-871-56
Nickel	7440-02-0	**7.77**	0.520	1.00		ICP2-871-56
Thallium	7440-28-0	ND	1.04	1.00	U	ICP2-871-56
Vanadium	7440-62-2	ND	0.520	1.00	U	ICP2-871-56
Zinc	7440-66-6	**8.71**	0.520	1.00		ICP2-871-56

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.
B - Denotes analyte observed in associated method blank at a concentration exceeding the PQL.

5

FOIL247609

Adirondack Environmental Services, Inc

Date: *06-Dec-13*

CLIENT:	Pace Analytical	**Client Sample ID:**	Pile A-Northeast Area
Work Order:	131204077	**Collection Date:**	11/26/2013
Reference:	/	**Lab Sample ID:**	131204077-001
PO#:		**Matrix:**	SOIL

Project# : 13110648

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SEMI-VOLATILE ORGANICS - EPA 8270D						Analyst: **MT**
(Prep: SW3545A - 12/5/2013)						
1,1-Biphenyl	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Phenol	3900	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Naphthalene	1600	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
2-Methylnaphthalene	1300	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Acenaphthylene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Acenaphthene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Dibenzofuran	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Fluorene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Phenanthrene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Anthracene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Carbazole	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Di-n-butyl phthalate	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Fluoranthene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Pyrene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benz(a)anthracene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Chrysene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Bis(2-ethylhexyl)phthalate	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Di-n-octyl phthalate	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(b)fluoranthene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(k)fluoranthene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(a)pyrene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Indeno(1,2,3-cd)pyrene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Dibenz(a,h)anthracene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(g,h,i)perylene	< 340	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Surr: 2,4,6-Tribromophenol	44.3	19.1-99.1		%REC	1	12/5/2013 5:34:00 PM
Surr: 2-Fluorobiphenyl	53.7	52.1-126		%REC	1	12/5/2013 5:34:00 PM
Surr: 2-Fluorophenol	30.4	25.6-96.3		%REC	1	12/5/2013 5:34:00 PM
Surr: 4-Terphenyl-d14	67.6	49.5-137		%REC	1	12/5/2013 5:34:00 PM
Surr: Nitrobenzene-d5	50.8	25.8-119		%REC	1	12/5/2013 5:34:00 PM
Surr: Phenol-d5	36.7	18.4-101		%REC	1	12/5/2013 5:34:00 PM
MOISURE CONTENT - ASTM D2216						Analyst: **PF**
Percent Moisture	3.9	0.1		wt%	1	12/5/2013

FOIL247610

Appendix A

WEDRON

SILICA

Material Safety Data Sheet

Date: August 10, 2009 **Supersedes:** July 28, 2006

SECTION 1: PRODUCT IDENTIFICATION

Trade Name as Labeled: Silica, Lake or Bank Sand; All Grades
Chemical Name and Formula: Silica, mainly in the form of quartz (crystalline silica); $Si0_2$

Manufacturer:
Wedron Silica Company
P.O. Box 177
Wedron, IL 60557
Phone: (815) 433-2449

Emergency Telephone Number: (800) 281-9876

"This Wedron Silica Company product is not intended for and is strictly prohibited for sandblasting."

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical	CAS Number	% by Weight
Crystalline Silica (Quartz)	14808-60-7	87-99.9

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C, it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trydimite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: The material is white or tan colored free-flowing sand. High airborne levels of dust may cause irritation to eyes and upper respiratory tract. Crystalline silica is an IARC Group 1 carcinogen. Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, may cause fire. It dissolves in hydrofluoric acid and may produce a corrosive gas (silicon tetrafluoride).

Acute Health Effects:
Inhalation: Excessive exposure to high concentrations of dust may cause irritation to the eyes, skin, and mucous membranes of the upper respiratory tract.
Eye: Dusts may cause irritation to the eye. Scratching of cornea can occur if eye is rubbed.
Ingestion: Ingestion of harmful amounts of this product as distributed is unlikely due to its solid insoluble form. Ingestion of excessive amounts of dust may cause nausea or vomiting.

Chronic Health Effects:
Chronic inhalation of respirable crystalline silica may cause silicosis; a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death. Crystalline silica inhaled from occupational sources is classified as carcinogenic to humans. There is some evidence that inhalation of respirable crystalline silica or silicosis is associated with an increased incidence of scleroderma (an immune system disorder manifested by fibrosis of the lungs, skin, and other internal organs), and kidney disease. Silicosis is also reported to increase the

risk of tuberculosis. Generally, there are no signs or symptoms of exposure to crystalline silica. The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure. *See Section 11, Toxicological Information, for additional detail on potential adverse health effects*.

SECTION 4: FIRST AID MEASURES

Inhalation: If there is a gross inhalation of crystalline silica, remove the person immediately to fresh air. Consult a physician as necessary.
Ingestion: Ingestion may cause gastrointestinal discomfort. Dilute by drinking large quantities of water. If discomfort persists, consult a physician.
Eye Contact: Immediately wash eyes with large amounts of water. If irritation or redness persists consult a physician.
Skin Contact: Wash with soap and water. If irritation persists consult a physician.

SECTION 5: FIRE FIGHTING MEASURES

Crystalline silica (quartz) is not flammable, combustible, or explosive.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release: Use personal protective equipment recommended in Section 8. Clean up using dustless methods (water or vacuum) to minimize generation and distribution of respirable silica particles. Avoid using compressed air. Collect material in appropriate containers for recovery and recycling or disposal.
Waste Disposal: See Section 12.

SECTION 7: HANDLING AND STORAGE

Handling: Handle the product in accordance with good industrial hygiene and safety practices. Refer to Section 8 for additional information on personal protective equipment. See American Society of Testing and Materials (ASTM) Standard Practice E 1132-99a, "*Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica*." Do not breathe dust. Use proper work practices and adequate ventilation with dust collection to maintain airborne levels of crystalline silica to below the PEL. *Use of this product may generate elevated levels of crystalline silica dust that may not be visible to the unaided eye.* If the airborne exposure levels to crystalline silica cannot be maintained below the PEL, wear a respirator (see Section 8) when handling, storing, or disposing of this product.
Storage: Avoid breakage of bagged material or spills of bulk material. *Note*: Quartz is incompatible with oxidizers such as hydrofluoric acid, fluorine, chlorine trifluoride, or oxygen difluoride (see Section 10).

The OSHA Hazard Communication Standard 29 CFR 1910.1200 and state and local worker or community "Right to Know" laws and regulations should be strictly followed. *Warn your employees (and your customer users in case of resale) by posting and other means of the hazards and the required OSHA precautions to be used. Provide training about the OSHA precautions.*

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Local Exhaust: Use sufficient local exhaust to reduce the level of respirable crystalline silica to below the PEL. See ACGIH "Industrial Ventilation, A Manual of Recommended Practice" (latest edition). Minimize the collection (build-up) of dust on walls, floors, equipment, and other horizontal surfaces.
Eye Protection: Use safety glasses, goggles, or face shield (as appropriate) under circumstances where particles could cause injury to the eye.
Skin Protection: Good personal hygiene practices should be followed including cleansing of exposed skin with soap and water, and laundering soiled work clothing.

Respiratory Protection: Use a NIOSH-approved air purifying or supplied-air respirator where airborne concentrations of crystalline silica (quartz) are expected to exceed exposure limits (see table below). Appropriate respiratory protection for respirable crystalline silica is based on the airborne exposure concentration and duration of exposure for the particular use of the respirator. A respiratory protection program in accordance with OSHA Standard 29 CFR 1910.134 must be implemented whenever workplace conditions warrant use of a respirator. ANSI Standard Z88.2 (recent revision) "American National Standard for Respiratory Protection." should also be considered. All tight-fitting respirators must be fit-tested either qualitatively or quantitatively for each respirator user. NIOSH recommends the use of respiratory protection when effective engineering controls are not feasible, or while they are being installed to control workplace exposures to crystalline silica.

AIRBORNE CRYSTALLINE SILICA CONCENTRATION	MINIMUM RESPIRATORY PROTECTION
Up to 0.5 mg/m^3	Any air-purifying respirator with a high efficiency particulate air (HEPA) filter.
Up to 1.25 mg/m^3	Any powered, air-purifying, full-facepiece respirator with a HEPA filter. Any supplied-air respirator operated in a continuous-flow mode.
Up to 2.5 mg/m^3	Any powered, air-purifying, full-facepiece respirator with a HEPA filter. Any powered, air-purifying respirator with a tight-fitting facepiece and a HEPA filter.
Up to 25 mg/m^3	Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.
Emergency or Planned Entry into Unknown Concentrations or Immediately Dangerous to Life or Health (IDLH) Conditions	Up to 500 mg/m^3: Any self-contained breathing apparatus with a full-facepiece and is operated in pressure-demand mode or other positive pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.
Escape	Any air-purifying, full-facepiece respirator with a HEPA filter. Any appropriate escape-type, self-contained breathing apparatus.
Use only NIOSH-approved respiratory protection. See 29 CFR §1910.134 and 42 CFR §84. See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection."	

Exposure Guidelines:

Chemical	Percentage (by wt.)	Exposure Guidelines						Unit
		OSHA		NIOSH		ACGIH		
		TWA	STEL	TWA	STEL	TWA	STEL	
Crystalline Silica (Quartz)	87-99.9	$\frac{10\ mg/m^{3\ a}}{\%\ SiO_2 + 2}$	N.E.	0.05^a	N.E.	0.025	N.E.	mg/m^3
N.E. = Not Established. a = respirable dust.								
OSHA Permissible Exposure Limits (PEL) and ACGIH Threshold Limit Values (TLV) are an 8-hour time-weighted average (TWA) concentration during a 40-hour workweek. NIOSH Recommended Exposure Limits (REL) is for up to a 10-hour workday during a 40-hour workweek.								

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Vapor Density (Air = 1): Not applicable.
Specific Gravity (Water = 1): 2.65
Solubility in Water: Insoluble in water.
Vapor Pressure: 10mm @ 1730°C
Melting Point: 1710° C
Boiling Point: 2230° C
Evaporation Rate (Butyl Acetate = 1): None.
Appearance and Color: White to tan; odorless.

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal handling and storage conditions.
Hazardous Polymerization: Cannot occur.
Chemical Incompatibility (Materials to Avoid): Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, may cause fires.

Hazardous Decomposition Products: Crystalline silica will dissolve in hydrofluoric acid and produce a corrosive gas (silicon tetrafluoride).

SECTION 11: TOXICOLOGICAL INFORMATION

Silicosis: The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis (often referred to as Simple Silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low concentrations of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter characterize simple silicosis, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pumonale).

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid.

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

Cancer:

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was *"sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is *"sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans (Group* 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997).

NTP: The National Toxicology Program (NTP), in its Ninth Annual Report on Carcinogens, classified "silica, crystalline (respirable)" as a known human carcinogen.

OSHA: Crystalline silica (quartz) is not regulated as a human carcinogen by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information. The following are examples of recently published articles:

"*Crystalline Silica and Lung Cancer: The Problem of Conflicting Evidence*", Indoor Built Environ, Volume 8, pp. 121-126 (1998);

"*Crystalline Silica and the Risk of Lung Cancer on the Potteries*", Occup. Environ. Med., Volume 55, pp. 779-785 (1998);

"*Is Silicosis Required for Silica-Associated Lung Cancer*?" American Journal of Industrial Medicine, Volume 37, pp. 252- 259 (2000);

"*Silica, Silicosis, and Lung Cancer: A Risk Assessment*", American Journal of Industrial Medicine, Volume 38, pp. 8-18 (2000);

"*Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report*", Journal of Occupational and Environmental Medicine, Volume 42, pp. 704-720 (2000).

"*NIOSH Hazard Review: Health Effects of Occupational Exposure to Respirable Crystalline Silica*. DDHS (NIOSH) Publication No. 2002-129 (2002).

Autoimmune Diseases: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted:

"*Occupational Exposure to Crystalline Silica and Autoimmune Disease*", Environmental Health Perspectives, Volume 107, Supplement 5, pp. 793-802 (1999);
"*Occupational Scleroderma*", Current Opinion in Rheumatology, Volume 11, pp. 490-494 (1999).

Tuberculosis: Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information:

Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994);
"*Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners*," Occup. Environ. Med., Volume 55, pp.496-502 (1998).

Kidney Disease: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted:

"*Kidney Disease and Silicosis*", Nephron, Volume 85, pp. 14-19 (2000).

Section 12: Disposal Considerations

General: Disposal of the material should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements. The material should be covered to minimize generation of airborne dust.
RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

The above applies to materials as sold by Wedron Silica Company. The material may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal of the used material.

Section 13: Transport Information

Crystalline silica (quartz) is not a hazardous material for purposes of transportation under the U. S. Department of Transportation Table of Hazardous Materials, 49 CFR §172.101.

Section 14: Regulatory Information

United States (Federal and State):

TSCA: Crystalline silica (quartz) is on the EPA Toxic Substance Control Act (TSCA) Section 8(b) inventory under CAS No. 14808-60-7.
RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), or its regulations, 40 CFR §261 et seq.
CERCLA: Crystalline silica (quartz) is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.
Emergency Planning and Community Right to Know Act (EPCRA): Crystalline silica (quartz) is not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.
Clean Air Act: Crystalline silica (quartz) was not processed with or does not contain any Class I or Class II ozone depleting substances.
Clean Water Act: Crystalline silica (quartz) is not listed as a hazardous substance in Section 311.
NTP: Respirable crystalline silica (quartz) is classified as a carcinogen.
OSHA: Crystalline silica (quartz) is listed under 29 CFR 1910.1000 as a toxic and hazardous substance.

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Crystalline silica (quartz) is classified as a substance known to the State of California to be a carcinogen.

Canada:

Domestic Substances List (DSL): Wedron Silica Company's products, as naturally occurring substances, are on the Canadian DSL.
WHMIS (Workplace Hazardous Materials Information System) Classification: Class D, Division 2A.

Other:
IARC: Crystalline silica (quartz) is classified in IARC Group 1 Carcinogen.

National, state, provincial or local emergency planning, community right-to-know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

SECTION 15: OTHER INFORMATION

Web Sites with Information about Effects of Crystalline Exposure:

http://www.osha.gov
http://www.cdc.gov/niosh/silicpag.html

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR 1910.1200 require that this Material Safety Data Sheet be made available to your employees who handle or may be exposed to this product. Educate and train your employees regarding applicable precautions. Instruct your employees to handle this product properly.

Disclaimer: The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Wedron Silica Company assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users.

Silica, Lake or Bank Sand

WARNING

Inhalation May Cause Lung Damage

Read Material Safety Data Sheet Before Using Product
Product is not intended for and is strictly prohibited for sandblasting.

This product contains respirable crystalline silica "quartz" (CAS #14808-60-7). Long term or repeated inhalation of respirable crystalline silica can cause fibrosis or scar tissue in the lungs (Silicosis). The International Agency for Research on Cancer (IARC) concluded that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

For additional information on this product refer to the Material Safety Data Sheet or contact:

Wedron Silica Company
2069 N. 3462nd Road
P.O. Box 177
Wedron, IL 60557
(800) 281-9876

6/29/05

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ASHLAND
SAFETY DATA SHEET

Page: 1
Revision Date: 01/25/2008
Print Date: 3/31/2008
MSDS Number: R0330297
Version: 1.5

ISOCURE® X II 674 BINDER 560353

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone	1-800-ASHLAND (1-800-274-5263)

Product name	ISOCURE® X II 674 BINDER
Product code	560353
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, dark brown

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN, CAUSE IRRITATION AND BURNS. HARMFUL IF INHALED. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.

Potential Health Effects

Routes of exposure

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Additional symptoms of skin contact may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects) Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible. Breathing this material may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, respiratory tract, skin, lung (for example, asthma-like conditions), kidney, eye, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias., Individuals with erythrocyte glucose-6-phosphate dehydrogenase deficiency are particularly susceptible to hemolytic agents and rapidly develop hemolytic anemia from ingestion or inhalation of this material (or a component).

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, sweating, Fever, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), runny nose, lung irritation, cough, discomfort in the chest, headache, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), Abdominal pain, chest pain, frequent or painful urination, shortness of breath, confusion, difficult breathing, blood abnormalities (breakage of red blood cells), lung edema (fluid buildup in the lung tissue), kidney damage, lung damage, Exposure to this product (or a component) may cause an allergic reaction (narrowing of the air passages of the lungs resulting in difficult breathing, tightness in the chest, coughing and wheezing) in some sensitive individuals. Other symptoms of an allergic reaction may include itchy and watery eyes, runny and stuffy nose, sweating, flushing, hives, rapid heart rate, and lowered blood pressure.

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, mild, reversible liver effects, cataracts, anemia, nasal damage, eye damage, nasal damage, lung damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, effects on lung function, cataracts, eye damage

Carcinogenicity

In a two-year inhalation study in rats, exposure to polymeric methylene bisphenylisocyanate (MDI) aerosol caused a significant increase in benign (noncarcinogenic) lung tumors, along with a single carcinogenic lung tumor, at the highest dose only (6 mg/m3). The tumors occurred along with irritation of the respiratory tract and the accumulation of a yellow material in the lungs. There was irritation only at 1.0 mg/m3 and no effect at 0.2 mg/m3. MDI is not listed as carcinogenic by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). In a National Toxicology Program (NTP) study, lifetime inhalation exposure to naphthalene resulted in increases in tumors of the nose in rats. In a previous NTP study, lifetime exposure to naphthalene caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. The relevance of this finding to humans is uncertain. Naphthalene is listed as carcinogenic by IARC (International Agency for Research on Cancer) and the National Toxicology Program (NTP).

Reproductive hazard

This material (or a component) causes harm to the fetus.

Other information

Infants are more sensitive than adults to the toxic effects of naphthalene. Diapers or cloths stored with mothballs and used directly on infants have caused skin rashes and illness. Naphthalene vapors from clothing or blankets that had been stored in or near the infant's room have caused illness and death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
POLY(METHYLENEPHENYLENE) POLYISOCYANATE	9016-87-9	>=30-<40%
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	>=30-<40%
AROMATIC HYDROCARBONS	NJTS# 254504001-5543	>=10-<15%
METHYLENE DIPHENYLISOCYANATE	26447-40-5	>=5-<10%
N-BUTYL TALLATE	67762-63-4	>=5-<10%
LINSEED OIL POLYMERIZED	67746-08-1	>=1.5-<5%
NAPHTHALENE	91-20-3	>=1-<1.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Notes to physician

Hazards: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting. Inhalation or ingestion of high levels of this material (or a component) may cause a hemolytic reaction. Complications of acute intravascular hemolysis include anemia, leukocytosis, fever, hemoglobinuria, jaundice, renal insufficiency, and sometimes disturbances in liver function. Fats, for example, baby oil on the skin or ingested oil, facilitate absorption of naphthalene. Pulmonary edema may be delayed.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Foam, Dry chemical, Water spray, Carbon dioxide (CO_2)

Hazardous combustion products

May form:, acrolein, carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), nitrogen compounds, various hydrocarbons

Precautions for fire-fighting

If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

Flammability Class for Flammable Liquids

Combustible Liquid Class IIIBCombustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental precautions

No data

Methods for cleaning up

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Neutralize spill with an aqueous solution of ammonia. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. This product is a component of a foundry binder system. Thermal decomposition during pouring, cooling and shakeout will produce numerous airborne contaminants, including carbon monoxide, hydrocarbons, nitrogen compounds, aldehydes, phenols, oxygenated compounds, isocyanates and particulates. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

Store in tightly closed containers. Do not allow moisture or water contamination of product. Contamination with water can cause dangerous pressure buildup in resealed containers. Do not reseal containers if contamination is suspected.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

4,4'-DIPHENYLMETHANE DIISOCYANATE	**101-68-8**	
ACGIH	time weighted average	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.05 mg/m3
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.020 ppm
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.2 mg/m3
OSHA Z1	Ceiling Limit Value:	0.02 ppm
OSHA Z1	Ceiling Limit Value:	0.2 mg/m3
OSHA Z1A	Ceiling Limit Value:	0.02 ppm
OSHA Z1A	Ceiling Limit Value:	0.2 mg/m3
US CA OEL	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):	0.005 ppm
US CA OEL	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):	0.051 mg/m3

NAPHTHALENE	**91-20-3**	
ACGIH	time weighted average	10 ppm
ACGIH	Short term exposure limit	15 ppm
NIOSH	Recommended exposure limit	10 ppm

	(REL):	
NIOSH	Recommended exposure limit (REL):	50 mg/m3
NIOSH	Short term exposure limit	15 ppm
NIOSH	Short term exposure limit	75 mg/m3
OSHA Z1	Permissible exposure limit	10 ppm
OSHA Z1	Permissible exposure limit	50 mg/m3

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Eye protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin and body protection

To prevent repeated or prolonged skin contact, wear impervious clothing and boots.
Wear resistant gloves such as:
Nitrile rubber

Respiratory protection

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	No data
Colour	dark brown

Odour	No data
Boiling point/boilingrange	No data
pH	No data
Flash point	(>)200.1 °F / 93.4 °C
Evaporation rate	No data
Explosion limits	No data
Vapour pressure	No data
Vapour density	No data
Density	1.142 g/cm3 @ 77.00 °F / 25.00 °C 9.5 lb/gal @ 77.00 °F / 25.00 °C
Solubility	No data
Partition coefficient: n-octanol/water	No data
Autoignition temperature	No data

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Incompatible products

Avoid contact with strong alkalies, strong mineral acids, and water., Avoid contact with:, strong alkalis, strong mineral acids, water

Hazardous decomposition products

May form:, acrolein, carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), nitrogen compounds, various hydrocarbons

Hazardous reactions

Product can undergo hazardous polymerization., Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

POLY(METHYLENEPHENYLENE) POLYISOCYANATE	LD 50 Rat: > 10,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE	LD 50 Rat: 9,200 mg/kg
AROMATIC HYDROCARBONS	LD 50 Rat: 3,000 mg/kg
METHYLENE DIPHENYLISOCYANATE	LD 50 Rat: > 15,800 mg/kg
NAPHTHALENE	LD 50 Rat: 490 mg/kg

Acute inhalation toxicity

POLY(METHYLENEPHENYLENE) POLYISOCYANATE	LC 50 Rat: 369 - 490 mg/m3 , 4 h
4,4'-DIPHENYLMETHANE DIISOCYANATE	LC 50 Rat: 0.369 mg/l , 4 h
AROMATIC HYDROCARBONS	LC 50 Rat: > 3,800 mg/m3 , 4 h
METHYLENE DIPHENYLISOCYANATE	LC 50 Rat: 490 mg/m3 , 4 h

Acute dermal toxicity

POLY(METHYLENEPHENYLENE) POLYISOCYANATE	LD 50 Rabbit: > 10,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE	LD 50 Rabbit: > 7,900 mg/kg
AROMATIC HYDROCARBONS	LD 50 Rabbit: > 3,000 mg/kg
METHYLENE DIPHENYLISOCYANATE	LD 50 Rabbit: > 5,010 mg/kg
NAPHTHALENE	LD 50 Rat: > 20,000 mg/kg

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Acute and Prolonged Toxicity to Fish
No data

Acute Toxicity to Aquatic Invertebrates
No data

Environmental fate and pathways
No data

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Destroy by liquid incineration in accordance with applicable regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

Dangerous goods descriptions (if indicated above) may not reflect package size, quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65
WARNING! This product contains a chemical known in the State of California to cause cancer.
NAPHTHALENE
ETHANOL
BENZENE

WARNING! This product contains a chemical known in the State of California to cause

birth defects or other reproductive harm.
TOLUENE
BENZENE

SARA Hazard Classification Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

POLY(METHYLENEPHENYLENE) POLYISOCYANATE	9016-87-9	35.325%
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	35.325%
NAPHTHALENE	91-20-3	1.0488%

	Health	Flammability	Reactivity	Other
HMIS	2*	1	1	
NFPA	3	1	1	

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

SAFETY DATA SHEET

PEP SET™ 3635 CATALYST
™ Trademark, ASK Chemicals, registered in various countries161593

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

ASK Chemicals L.P.	Regulatory Information Number	1-800-325-3751
P.O. Box 395	Telephone	
Columbus, OH 43216	Emergency telephone number	1-855-ASK4YOU (1-855-275-4968)

Product name	PEP SET™ 3635 CATALYST ™ Trademark, ASK Chemicals, registered in various countries
Product code	161593
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, blue green

CAUTION! COMBUSTIBLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes
Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact
Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Additional symptoms of eye exposure may include: blurred vision

Skin contact
Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Additional symptoms of skin contact may include: skin blistering

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible.

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, skin, lung (for example, asthma-like conditions), liver, kidney, Heart, blood-forming system, auditory system, eye, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias., Individuals with preexisting heart disorders maybe more susceptible to arrhythmias (irregular heartbeats) if exposed to high concentrations of this material.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, redness of the skin, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, temporary changes in mood and behavior, respiratory depression (slowing of the breathing rate), loss of coordination, confusion, irregular heartbeat

Target Organs

Prolonged intentional toluene abuse may lead to hearing loss progressing to deafness. In addition, while noise is known to cause hearing loss in humans, it has been suggested that workers exposed to organic solvents, including toluene, along with noise may suffer greater hearing loss than would be expected from exposure to noise alone., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, blood abnormalities, liver abnormalities, cataracts, anemia, eye damage, kidney damage, effects on hearing, central nervous system damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, cardiac abnormalities

Carcinogenicity

Cumene has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. Cumene is not listed as a carcinogen by the International Agency for Research on Cancer, the National Toxicology Program, or the Occupational Safety and Health Administration.

Ethylbenzene has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. The International Agency for Research on Cancer (IARC) has classified ethylbenzene as a possible human carcinogen.

Reproductive hazard

Cumene (isopropylbenzene) did not cause harm to the unborn pup in laboratory animal studies, even at levels which were harmful to the pregnant animal.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	64742-95-6	>=30-<40%
VINYL-1-IMIDAZOLE	1072-63-5	>=30-<40%
TRIMETHYLBENZENE 1,2,4-	95-63-6	>=20-<30%
TRIMETHYLBENZENE, 1,3,5-	108-67-8	>=5-<10%
XYLENE	1330-20-7	>=1.5-<5%
CUMENE	98-82-8	>=1.5-<5%
DIETHYLBENZENE	25340-17-4	>=1-<1.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material. This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water mist, Carbon dioxide (CO2), Dry chemical

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), nitrogen compounds, various hydrocarbons

Precautions for fire-fighting

If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class II

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental precautions

No data

Methods for cleaning up

Absorb liquid on vermiculite, floor absorbent, or other absorbent material and transfer to hood.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. This product is a component of a foundry binder system. Thermal decomposition during pouring, cooling and shakeout will produce numerous airborne contaminants, including carbon monoxide, hydrocarbons, nitrogen compounds, aldehydes, phenols, oxygenated compounds, isocyanates and particulates. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

No data

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

TRIMETHYLBENZENE 1,2,4-		**95-63-6**
NIOSH	Recommended exposure limit (REL):	25 ppm

NIOSH	Recommended exposure limit (REL):	125 mg/m3
ACGIH	time weighted average	25 ppm
TRIMETHYLBENZENE, 1,3,5-		**108-67-8**
NIOSH	Recommended exposure limit (REL):	25 ppm
NIOSH	Recommended exposure limit (REL):	125 mg/m3
ACGIH	time weighted average	25 ppm
XYLENE		**1330-20-7**
ACGIH	time weighted average	100 ppm
ACGIH	Short term exposure limit	150 ppm
OSHA Z1	Permissible exposure limit	100 ppm
OSHA Z1	Permissible exposure limit	435 mg/m3
NIOSH	Recommended exposure limit (REL):	100 ppm
NIOSH	Recommended exposure limit (REL):	435 mg/m3
NIOSH	Short term exposure limit	150 ppm
NIOSH	Short term exposure limit	655 mg/m3
CUMENE		**98-82-8**
ACGIH	time weighted average	50 ppm
NIOSH	Recommended exposure limit (REL):	50 ppm
NIOSH	Recommended exposure limit (REL):	245 mg/m3
OSHA Z1	Permissible exposure limit	50 ppm
OSHA Z1	Permissible exposure limit	245 mg/m3
DIETHYLBENZENE		**25340-17-4**
WEEL	time weighted average	5 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Eye protection

Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)

Skin and body protection

To prevent skin contact, wear impervious clothing and boots.
Wear resistant gloves such as:
Nitrile rubber

Respiratory protection

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	no data available
Colour	blue green
Odour	no data available
Boiling point/boiling range	321.01 °F / 160.56 °C Calculated Phase Transition Liquid/Gas
Melting point/range	no data available
Sublimation point	no data available
pH	no data available
Flash point	120 °F / 49 °C Seta closed cup
Ignition temperature	no data available
Evaporation rate	1 Ethyl Ether
Lower explosion limit/Upper explosion limit	1 %(V) / 7 %(V)
Particle size	no data available
Vapour pressure	2.800 hPa @ 68 °F / 20 °C Calculated Vapor Pressure
Relative vapour density	(>)1 AIR=1
Density	0.925 g/cm3 @ 77.00 °F / 25.00 °C 7.7 lb/gal @ 77.00 °F / 25.00 °C
Bulk density	No data
Water solubility	no data available

Solubility(ies)	no data available
Partition coefficient: n-octanol/water	no data available
log Pow	no data available
Autoignition temperature	no data available
Viscosity, dynamic	no data available
Viscosity, kinematic	no data available
Solids in Solution	no data available
Decomposition temperature	no data available
Burning number	no data available
Dust explosion constant	no data available
Minimum ignition energy	no data available

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
None known.

Incompatible products
strong alkalis, strong mineral acids, strong oxidizing agents

Hazardous decomposition products
carbon dioxide and carbon monoxide, Hydrogen cyanide (hydrocyanic acid), nitrogen compounds, various hydrocarbons

Hazardous reactions
Product will not undergo hazardous polymerization.

Thermal decomposition
No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	LD 50 Rat: > 5,600 mg/kg

VINYL-1-IMIDAZOLE	:	LD 50 Rat: 1,100 mg/kg
TRIMETHYLBENZENE 1,2,4-	:	LD 50 Rat: 6 g/kg
TRIMETHYLBENZENE, 1,3,5-	:	LD 50 Rat: > 5,000 mg/kg
XYLENE	:	LD 50 Rat: 4,300 mg/kg
CUMENE	:	LD 50 Rat: 2,910 mg/kg LD 50 Rat: 1,400 mg/kg
DIETHYLBENZENE	:	no data available

Acute inhalation toxicity

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	LC 50 Rat: (>) 10,200 mg/m3; 4 h
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	LC 50 Rat: > 2000 ppm; 48 h
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	LC 50 Rat: 6700 ppm; 4 h
CUMENE	:	LC 50 Rat: 8,000 mg/l; 4 h
DIETHYLBENZENE	:	no data available

Acute dermal toxicity

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	LD 50 Rabbit: (>) 4,000 mg/kg
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	LD 50 Rabbit: > 3,160 mg/kg
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	LD 50 Rabbit: > 2,000 mg/kg
CUMENE	:	LD 50 Rabbit: 3.15 g/kg

DIETHYLBENZENE	:	no data available

12. ECOLOGICAL INFORMATION

Biodegradability

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	0 % Exposure time: 28 d Method: OECD Test Guideline 301C Not readily biodegradable.

Bioaccumulation

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	no data available

Ecotoxicity effects

Toxicity to fish

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	96 h flow-through test LC 50 Fathead minnow (Pimephales promelas): 7.19 - 8.28 mg/l ; Mortality
TRIMETHYLBENZENE, 1,3,5-	:	96 h flow-through test LC 50 Goldfish (Carassius auratus): 9.89 - 15.05 mg/l
XYLENE	:	96 h static test LC 50 Fathead minnow (Pimephales promelas): 23.53 - 29.97 mg/l
CUMENE	:	96 h LC 50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 2.70 mg/l Method: Renewal; Mortality
DIETHYLBENZENE	:	96 h semi-static test LC 50 Oncorhynchus mykiss (rainbow trout): 0.67 mg/l

Toxicity to daphnia and other aquatic invertebrates.

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	24 h static test EC 50 Water flea (Daphnia magna): 50.00 mg/l
XYLENE	:	24 h static test LC 50 Water flea (Daphnia magna): > 100.00 - < 1,000.00 mg/l
CUMENE	:	48 h EC 50 Water flea (Daphnia magna): 7.90 - 14.10 mg/l Method: Static Intoxication
DIETHYLBENZENE	:	48 h static test LC 50 Water flea (Daphnia magna): 8.90 mg/l

Toxicity to algae

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	72 h Growth inhibition EC 50 Pseudokirchneriella subcapitata (green algae): 2.10 mg/l Method: OECD Test Guideline 201

Toxicity to bacteria

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	no data available

Biochemical Oxygen Demand (BOD)

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available

XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	no data available

Chemical Oxygen Demand (COD)

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	no data available

Additional ecological information

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	:	no data available
VINYL-1-IMIDAZOLE	:	no data available
TRIMETHYLBENZENE 1,2,4-	:	no data available
TRIMETHYLBENZENE, 1,3,5-	:	no data available
XYLENE	:	no data available
CUMENE	:	no data available
DIETHYLBENZENE	:	no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations. Destroy by liquid incineration in accordance with applicable regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER		PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
U.S. DOT - ROAD						
		Not dangerous goods				
U.S. DOT - RAIL						
		Not dangerous goods				
U.S. DOT - INLAND WATERWAYS						
		Not dangerous goods				
TRANSPORT CANADA - ROAD						
		Not dangerous goods				
TRANSPORT CANADA - RAIL						
		Not dangerous goods				
TRANSPORT CANADA - INLAND WATERWAYS						
		Not dangerous goods				
INTERNATIONAL MARITIME DANGEROUS GOODS						
UN	1993	FLAMMABLE LIQUID, N.O.S. (AROMATIC PETROLEUM NAPHTHA)	3		III	
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO						
UN	1993	Flammable liquid, n.o.s. (AROMATIC PETROLEUM NAPHTHA)	3		III	

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1993	Flammable liquid, n.o.s. (AROMATIC PETROLEUM NAPHTHA)	3	III

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1993	LIQUIDO INFLAMABLE, N.E.P. (AROMATIC PETROLEUM NAPHTHA)	3	III

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.	CUMENE ETHYL BENZENE BENZENE
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	TOLUENE BENZENE

SARA Hazard Classification
Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

TRIMETHYLBENZENE 1,2,4-	25.19 %
XYLENE	2.09 %
CUMENE	2.09 %

New Jersey RTK Label Information

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	64742-95-6
VINYL-1-IMIDAZOLE	1072-63-5
TRIMETHYLBENZENE 1,2,4-	95-63-6
TRIMETHYLBENZENE, 1,3,5-	108-67-8
XYLENE	1330-20-7
CUMENE	98-82-8
DIETHYLBENZENE	25340-17-4

Pennsylvania RTK Label Information

SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC	64742-95-6
VINYL-1-IMIDAZOLE	1072-63-5
TRIMETHYLBENZENE 1,2,4-	95-63-6
TRIMETHYLBENZENE, 1,3,5-	108-67-8
XYLENE	1330-20-7
CUMENE	98-82-8

Notification status

EU. EINECS	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302) 4762 lbs

Reportable quantity-Components

XYLENE	1330-20-7	100 lbs

	HMIS	NFPA
Health	2*	2
Flammability	2	2
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

ASKCHEMICALS
We advance your casting

SAFETY DATA SHEET

PEP SET™ I 1670-E BINDER
™ Trademark, ASK Chemicals, registered in various countries683472

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

ASK Chemicals L.P.	Regulatory Information Number	1-800-325-3751
P.O. Box 395	Telephone	
Columbus, OH 43216	Emergency telephone number	1-855-ASK4YOU (1-855-275-4968)

Product name	PEP SET™ I 1670-E BINDER ™ Trademark, ASK Chemicals, registered in various countries
Product code	683472
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid

WARNING! COMBUSTIBLE LIQUID AND VAPOR. MAY BE HARMFUL IF INHALED. HARMFUL IF SWALLOWED. CAUSES EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes
Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact
Can cause severe eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure eye tissue.

Skin contact
Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing this material may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Upper respiratory tract, Skin, lung (for example, asthma-like conditions), Liver, Kidney, Gastrointestinal tract, Heart

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, sweating, Fever, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, Lung irritation, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), Weakness, low body temperature, Lowered blood pressure, Abdominal pain, frequent or painful urination, effects on heart rate, respiratory depression (slowing of the breathing rate), confusion, Difficulty in breathing, irregular heartbeat, cyanosis (causes blue coloring of the skin and nails from lack of oxygen), blood abnormalities (breakage of red blood cells), lung edema (fluid buildup in the lung tissue), kidney damage, lung damage, shock, Convulsions, respiratory failure, coma

Target Organs

This material (or a component) has been shown to lower activity of certain immune system cells in experimental animals. The significance of this effect with respect to human health is uncertain., Chronic phenol poisoning is characterized by digestive disorders such as anorexia and weight loss, and by nervous disorders, with headache, fainting, vertigo, and mental disturbances., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, nervous system effects, mild, reversible liver effects, blood abnormalities, cataracts, anemia, nasal damage, eye damage, kidney damage, liver damage, heart damage, central nervous system damage, lung damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, central nervous system effects, cataracts, eye damage

Carcinogenicity

In a National Toxicology Program (NTP) study, lifetime inhalation exposure to naphthalene resulted in increases in tumors of the nose in rats. In a previous NTP study, lifetime exposure to naphthalene caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. The relevance of this finding to humans is uncertain. Naphthalene is listed as carcinogenic by IARC (International Agency for Research on Cancer) and the National Toxicology Program (NTP).

Reproductive hazard

This material (or a component) causes harm to the fetus.

Other information

Infants are more sensitive than adults to the toxic effects of naphthalene. Diapers or cloths stored with mothballs and used directly on infants have caused skin rashes and illness. Naphthalene vapors from clothing or blankets that had been stored in or near the infant's room have caused illness and death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
AROMATIC HYDROCARBONS	254504001-5543	>=30-<40%
GLYCOL ESTER	254504001-5789	>=15-<20%
PHENOL	108-95-2	>=5-<10%
NAPHTHALENE	91-20-3	>=1.5-<5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Do not induce vomiting. Phenol concentrations greater than 1.5% produce irritation and greater than 5% are corrosive; vomiting can cause further damage to the mouth and throat. Do not dilute the swallowed material, since this may enhance its absorption. Seek immediate medical attention. If possible, do not leave the individual unattended. Vomiting and diarrhea may occur spontaneously.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Notes to physician

Hazards: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting. Inhalation or ingestion of high levels of this material (or a component) may cause a hemolytic reaction. Complications of acute intravascular hemolysis include anemia, leukocytosis, fever, hemoglobinuria, jaundice, renal insufficiency, and sometimes disturbances in liver function. Fats, for example, baby oil on the skin or ingested oil, facilitate absorption of naphthalene. Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material. Pulmonary edema may be delayed.

Treatment: Phenol adsorbs to activated charcoal, and it maybe preferable to ipecac-induced emesis because seizures or coma may onset rapidly and because of the corrosive effects of phenol. A usual activated charcoal dose in adults is 30-100 g and in children is 15-30 g. Activated charcoal should be administered with, or followed by, a cathartic. If endoscopy is planned, charcoal may obscure visualization of affected areas. Gastric lavage may be indicated if it is performed soon after ingestion or in patients who are comatose or at risk of seizures. Monitor for seizures, metabolic acidosis and ventricular dysrhythmias.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, Dry chemical, Carbon dioxide (CO2)

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons, nitrogen oxides (NOx), Sulphur oxides, acid vapors

Precautions for fire-fighting

If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIA

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Ensure adequate ventilation. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

Store in a cool, dry, ventilated area, away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

PHENOL			**108-95-2**
	ACGIH	time weighted average	5 ppm
	NIOSH	Recommended exposure limit (REL):	5 ppm
	NIOSH	Recommended exposure limit (REL):	19 mg/m3
	NIOSH	Ceiling Limit Value and Time Period (if specified):	15.6 ppm
	NIOSH	Ceiling Limit Value and Time Period (if specified):	60 mg/m3
	OSHA Z1	Permissible exposure limit	5 ppm
	OSHA Z1	Permissible exposure limit	19 mg/m3
NAPHTHALENE			**91-20-3**
	ACGIH	time weighted average	10 ppm
	ACGIH	Short term exposure limit	15 ppm
	NIOSH	Recommended exposure limit (REL):	10 ppm
	NIOSH	Recommended exposure limit (REL):	50 mg/m3
	NIOSH	Short term exposure limit	15 ppm
	NIOSH	Short term exposure limit	75 mg/m3
	OSHA Z1	Permissible exposure limit	10 ppm
	OSHA Z1	Permissible exposure limit	50 mg/m3
	ACGIH NIC	time weighted average	2 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist. Maintain eye wash station near work area.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).
Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	no data available
Colour	no data available
Odour	no data available
Boiling point/boiling range	no data available
Melting point/range	no data available
Sublimation point	no data available

pH	no data available
Flash point	151.0 °F / 66.1 °C
Ignition temperature	no data available
Evaporation rate	no data available
Lower explosion limit/Upper explosion limit	no data available
Particle size	no data available
Vapour pressure	no data available
Relative vapour density	no data available
Density	1.09 g/cm3 @ 77 °F / 25 °C 9.1 lb/gal @ 77 °F / 25 °C
Bulk density	No data
Water solubility	no data available
Solubility(ies)	no data available
Partition coefficient: n-octanol/water	no data available
log Pow	no data available
Autoignition temperature	no data available
Viscosity, dynamic	no data available
Viscosity, kinematic	no data available
Solids in Solution	no data available
Decomposition temperature	no data available
Burning number	no data available
Dust explosion constant	no data available
Minimum ignition energy	no data available

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

excessive heat

Incompatible products

Strong acids, strong bases, Copper alloys, halogens, halogenated hydrocarbons, Strong oxidizing agents, strong reducing agents, 1,3-butadiene, aluminum, Chromic acid, Copper, Iron, Lead, magnesium, Zinc

Hazardous decomposition products

carbon dioxide and carbon monoxide, Hydrocarbons, acid vapors

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

AROMATIC HYDROCARBONS	:	LD 50 Rat: 3,000 mg/kg
GLYCOL ESTER	:	no data available
PHENOL	:	LD 50 Rat: 317 mg/kg
NAPHTHALENE	:	LD50 Oral Rat: 2,200 mg/kg

Acute inhalation toxicity

AROMATIC HYDROCARBONS	:	LC 50 Rat: > 3,800 mg/m3; 4 h
GLYCOL ESTER	:	no data available
PHENOL	:	LC 50 Rat: 316 mg/m3; 4 h
NAPHTHALENE	:	no data available

Acute dermal toxicity

AROMATIC HYDROCARBONS	:	LD 50 Rabbit: > 3,000 mg/kg
GLYCOL ESTER	:	LD 50 Rabbit: 9,360 mg/kg
PHENOL	:	LD 50 Rabbit: 850 mg/kg
NAPHTHALENE	:	LD50 Dermal Rabbit: > 2.0 g/kg

12. ECOLOGICAL INFORMATION

Biodegradability

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

Bioaccumulation

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	Species: Rainbow trout,donaldson trout (Oncorhynchus mykiss) Exposure time: 16 d Dose: 0.023 mg/l Bioconcentration factor (BCF): 25 Method: Flow through

Ecotoxicity effects

Toxicity to fish

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	96 h LC 50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 7.50 - 14.00 mg/l Method: Static; Mortality 96 h LC 50 Danio rerio (zebra fish): 27.80 mg/l Method: Static; Mortality
NAPHTHALENE	:	96 h static test LC 50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 0.91 - 2.82 mg/l

Toxicity to daphnia and other aquatic invertebrates.

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	48 h EC 50 Water flea (Daphnia magna): 4.24 - 10.70 mg/l Method: Static Intoxication
NAPHTHALENE	:	48 h static test EC 50 Water flea (Daphnia magna): 1.09 - 3.40 mg/l

Toxicity to algae

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

Toxicity to bacteria

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

Biochemical Oxygen Demand (BOD)

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

Chemical Oxygen Demand (COD)

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

Additional ecological information

AROMATIC HYDROCARBONS	:	no data available
GLYCOL ESTER	:	no data available
PHENOL	:	no data available
NAPHTHALENE	:	no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
U.S. DOT - ROAD					
NA 1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES, PHENOL)	CBL		III	

U.S. DOT - RAIL

NA	1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES, PHENOL)	CBL	III

U.S. DOT - INLAND WATERWAYS

NA	1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES, PHENOL)	CBL	III

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.	NAPHTHALENE FORMALDEHYDE BENZENE
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	BENZENE TOLUENE

SARA Hazard Classification

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

PHENOL	5.91 %
NAPHTHALENE	2.94 %

New Jersey RTK Label Information

Phenolic Resin	800986-5280P
AROMATIC HYDROCARBONS	254504001-5543
GLYCOL ESTER	254504001-5789
PHENOL	108-95-2
NAPHTHALENE	91-20-3

Pennsylvania RTK Label Information

Phenolic Resin	800986-5280P
AROMATIC HYDROCARBONS	254504001-5543
GLYCOL ESTER	254504001-5789
PHENOL	108-95-2
NAPHTHALENE	91-20-3
FORMALDEHYDE	50-00-0

Notification status

EU. EINECS	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA).	y (positive listing)

Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	
Japan. Kashin-Hou Law List	n (Negative listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302) 3395 lbs

Reportable quantity-Components

NAPHTHALENE	91-20-3	100 lbs

	HMIS	NFPA
Health	2*	2
Flammability	2	2
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

SAFETY DATA SHEET

PEP SET™ II 2670-E BINDER
™ Trademark, ASK Chemicals, registered in various countries683478

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

ASK Chemicals L.P.	Regulatory Information Number	1-800-325-3751
P.O. Box 395	Telephone	
Columbus, OH 43216	Emergency telephone number	1-855-ASK4YOU (1-855-275-4968)

Product name	PEP SET™ II 2670-E BINDER ™ Trademark, ASK Chemicals, registered in various countries
Product code	683478
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. HARMFUL IF INHALED. HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing this material may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing this material may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.). This product is a two-part urethane system. While breathing 4,4'-diphenylmethane diisocyanate (MDI) can be harmful or fatal, breathing MDI is not expected during normal use of this system.

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Skin, lung (for example, asthma-like conditions), Upper respiratory tract, kidney, immune system, eye, urinary system, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias., Individuals with erythrocyte glucose-6-phosphate dehydrogenase deficiency are particularly susceptible to hemolytic agents and rapidly develop hemolytic anemia from ingestion or inhalation of this material (or a component).

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, stomach or intestinal upset (nausea, vomiting, diarrhea), Headache, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), Exposure to this product (or a component) may cause an allergic reaction (narrowing of the air passages of the lungs resulting in difficult breathing, tightness in the chest, coughing and wheezing) in some sensitive individuals. Other symptoms of an allergic reaction may include itchy and watery eyes, runny and stuffy nose, sweating, flushing, hives, rapid heart rate, and lowered blood pressure., Lung irritation, lung edema (fluid buildup in the lung tissue), sweating, Fever, Abdominal pain, frequent or painful urination, confusion, blood abnormalities (breakage of red blood cells), kidney damage, lung damage, respiratory failure

Target Organs

This material (or a component) has been shown to lower activity of certain immune system cells in experimental animals. The significance of this effect with respect to human health is uncertain., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, mild, reversible liver effects, cataracts, anemia, eye damage, central nervous system damage, nasal damage, lung damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, effects on lung function, cataracts, eye damage

Carcinogenicity

In a two-year inhalation study in rats, exposure to polymeric methylene bisphenylisocyanate (MDI) aerosol caused a significant increase in benign (noncarcinogenic) lung tumors, along with a single carcinogenic lung tumor, at the highest dose only (6 mg/m3). The tumors occurred along with irritation of the respiratory tract and the accumulation of a yellow material in the lungs. There was irritation only at 1.0 mg/m3 and no effect at 0.2 mg/m3. MDI is not listed as carcinogenic by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). In a National Toxicology Program (NTP) study, lifetime inhalation exposure to naphthalene resulted in increases in tumors of the nose in rats. In a previous NTP study, lifetime exposure to naphthalene caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. The relevance of this finding to humans is uncertain. Naphthalene is listed as carcinogenic by IARC (International Agency for Research on Cancer) and the National Toxicology Program (NTP).

Reproductive hazard

This material (or a component) causes harm to the fetus.

Other information

Infants are more sensitive than adults to the toxic effects of naphthalene. Diapers or cloths stored with mothballs and used directly on infants have caused skin rashes and illness. Naphthalene vapors from clothing or blankets that had been stored in or near the infant's room have caused illness and death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
POLYMETHYLENE POLYPHENYL ISOCYANATE	9016-87-9	>=30-<40%
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8	>=30-<40%
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	64742-94-5	>=30-<40%
METHYLENE DIPHENYLISOCYANATE	26447-40-5	>=1.5-<5%
NAPHTHALENE	91-20-3	>=1.5-<5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Notes to physician

Hazards: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting. Inhalation or ingestion of high levels of this material (or a component) may cause a hemolytic reaction. Complications of acute intravascular hemolysis include anemia, leukocytosis, fever, hemoglobinuria, jaundice, renal insufficiency, and sometimes disturbances in liver function. Fats, for example, baby oil on the skin or ingested oil, facilitate absorption of naphthalene.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, Carbon dioxide (CO2), Dry chemical

Hazardous combustion products

Hydrogen cyanide (hydrocyanic acid), Isocyanates, nitrogen oxides (NOx), Hydrocarbons, carbon dioxide and carbon monoxide, nitrogen compounds

Precautions for fire-fighting

If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIA

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Ensure adequate ventilation. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

4,4'-DIPHENYLMETHANE DIISOCYANATE		**101-68-8**
ACGIH	time weighted average	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.005 ppm
NIOSH	Recommended exposure limit (REL):	0.05 mg/m3
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.020 ppm
NIOSH	Ceiling Limit Value and Time Period (if specified):	0.2 mg/m3
OSHA Z1	Ceiling Limit Value:	0.02 ppm
OSHA Z1	Ceiling Limit Value:	0.2 mg/m3
NAPHTHALENE		**91-20-3**
ACGIH	time weighted average	10 ppm
ACGIH	Short term exposure limit	15 ppm
NIOSH	Recommended exposure limit (REL):	10 ppm
NIOSH	Recommended exposure limit (REL):	50 mg/m3
NIOSH	Short term exposure limit	15 ppm
NIOSH	Short term exposure limit	75 mg/m3
OSHA Z1	Permissible exposure limit	10 ppm
OSHA Z1	Permissible exposure limit	50 mg/m3
ACGIH NIC	time weighted average	2 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear impervious gloves (consult your safety equipment supplier).

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection. Diisocyanates have poor warning properties. An air-purifying respirator with an organic vapor cartridge and an N95 prefilter can be used safely and effectively to reduce exposure, provided that appropriate cartridge change schedules are developed to ensure that cartridges are changed before breakthrough occurs. The employer is required to select the appropriate respirator for each situation and must consider potential exposure to chemicals in addition to diisocyanates.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	no data available
Colour	no data available
Odour	no data available
Boiling point/boiling range	no data available
Melting point/range	no data available
Sublimation point	no data available

pH	no data available
Flash point	154.99 °F / 68.33 °C
Ignition temperature	no data available
Evaporation rate	no data available
Lower explosion limit/Upper explosion limit	no data available
Particle size	no data available
Vapour pressure	no data available
Relative vapour density	no data available
Density	No data 9.250 lb/gal
Bulk density	No data
Water solubility	no data available
Solubility(ies)	no data available
Partition coefficient: n-octanol/water	no data available
log Pow	no data available
Autoignition temperature	no data available
Viscosity, dynamic	no data available
Viscosity, kinematic	no data available
Solids in Solution	no data available
Decomposition temperature	no data available
Burning number	no data available
Dust explosion constant	no data available
Minimum ignition energy	no data available

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

Copper alloys, Alcohols, alkenes, strong alkalis, strong mineral acids, water, Amines, Strong oxidizing agents

Hazardous decomposition products

Hydrogen cyanide (hydrocyanic acid), Isocyanates, nitrogen oxides (NOx), Hydrocarbons, carbon dioxide and carbon monoxide, nitrogen compounds

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	LD 50 Rat: > 10,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	LD 50 Rat: 9,200 mg/kg
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	LD 50 Rat: 3,000 mg/kg
METHYLENE DIPHENYLISOCYANATE	:	LD 50 Rat: > 15,800 mg/kg
NAPHTHALENE	:	LD50 Oral Rat: 2,200 mg/kg

Acute inhalation toxicity

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	LC 50 Rat: 369 - 490 mg/m3; 4 h
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	LC 50 Rat: 0.369 mg/l; 4 h
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	LC 50 Rat: > 3,800 mg/m3; 4 h
METHYLENE DIPHENYLISOCYANATE	:	LC 50 Rat: 490 mg/m3; 4 h
NAPHTHALENE	:	no data available

Acute dermal toxicity

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	LD 50 Rabbit: > 10,000 mg/kg
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	LD 50 Rabbit: > 7,900 mg/kg
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	LD 50 Rabbit: > 3,000 mg/kg
METHYLENE DIPHENYLISOCYANATE	:	LD 50 Rabbit: > 5,010 mg/kg

NAPHTHALENE	:	LD50 Dermal Rabbit: > 2.0 g/kg

12. ECOLOGICAL INFORMATION

Biodegradability

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	no data available

Bioaccumulation

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	Species: Rainbow trout,donaldson trout (Oncorhynchus mykiss) Exposure time: 16 d Dose: 0.023 mg/l Bioconcentration factor (BCF): 25 Method: Flow through

Ecotoxicity effects

Toxicity to fish

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available

SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	96 h static test LC 50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): 0.91 - 2.82 mg/l

Toxicity to daphnia and other aquatic invertebrates.

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	48 h static test EC 50 Water flea (Daphnia magna): 1.09 - 3.40 mg/l

Toxicity to algae

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	no data available

Toxicity to bacteria

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available

NAPHTHALENE	:	no data available

Biochemical Oxygen Demand (BOD)

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	no data available

Chemical Oxygen Demand (COD)

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	no data available

Additional ecological information

POLYMETHYLENE POLYPHENYL ISOCYANATE	:	no data available
4,4'-DIPHENYLMETHANE DIISOCYANATE	:	no data available
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	:	no data available
METHYLENE DIPHENYLISOCYANATE	:	no data available
NAPHTHALENE	:	no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
U.S. DOT - ROAD					
NA 1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES)	CBL		III	
U.S. DOT - RAIL					
NA 1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES)	CBL		III	
U.S. DOT - INLAND WATERWAYS					
NA 1993	Combustible liquid, n.o.s. (AROMATIC PETROLEUM DISTILLATES)	CBL		III	

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.	NAPHTHALENE BENZENE
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	BENZENE TOLUENE

SARA Hazard Classification
Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

POLYMETHYLENE POLYPHENYL ISOCYANATE	35.00 %
4,4'-DIPHENYLMETHANE DIISOCYANATE	31.50 %
NAPHTHALENE	2.85 %

New Jersey RTK Label Information

POLYMETHYLENE POLYPHENYL ISOCYANATE	9016-87-9
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	64742-94-5
METHYLENE DIPHENYLISOCYANATE	26447-40-5

NAPHTHALENE	91-20-3

Pennsylvania RTK Label Information

POLYMETHYLENE POLYPHENYL ISOCYANATE	9016-87-9
4,4'-DIPHENYLMETHANE DIISOCYANATE	101-68-8
SOLVENT NAPHTHA (PETROLEUM), HEAVY AROMATIC	64742-94-5
METHYLENE DIPHENYLISOCYANATE	26447-40-5
NAPHTHALENE	91-20-3

Notification status

EU. EINECS	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Japan. Kashin-Hou Law List	n (Negative listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	3508 lbs

Reportable quantity-Components

NAPHTHALENE	91-20-3	100 lbs

	HMIS	NFPA
Health	2*	3
Flammability	2	2
Physical hazards	1	
Instability		1
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

Appendix B

PROCESS FLOW CHART

FORM # QD3-6A

Product # :	All Product Numbers
Part #:	No Bake core making
Part Name:	All
Alloy:	All
Company Name:	Oberdorfer L.L.C.

CONTROLLED

Operation	Process Specification	OPS	OPER #
Sample Sand Incoming Wedron Sand	Certification Enclosed	OPS 3178	N/A
Make Sand Cores 1.125% Mix #1	Per Specification	OPS 3190	N/A
Inspect Sand Core	Visual Inspection	N/A	N/A
Core Finishing	Per Process Operation N938174	OPS 4200	N838174
Shake-Out	Per Specification	OPS 11001	P151439
Burn-Out	Per Specification	OPS 11006	P351444

Product # :	All Product Numbers
Part #:	Isocure Sand System
Part Name:	All
Alloy:	All
Company Name:	Oberdorfer L.L.C.

CONTROLLED

Operation	Process Specification	OPS	OPER #
Sample Sand Incoming Wedron Sand	Certification Enclosed	OPS 3178	N/A
Make Sand Cores 1.125% Mix #1	Per Specification	OPS 3115	N/A
Inspect Sand Core	Visual Inspection	N/A	N/A
Core Finishing	Per Process Operation N938174	OPS 4200	N838174
Shake-Out	Per Specification	OPS 11001	P151439
Burn-Out	Per Specification	OPS 11006	P351444

Shake-Out	MOVED FROM SHAKE OUT TO SAND PLIES

PROCESS SPECIFICATION
AIRSET MIX # 1 (1.125 %)

MANUFACTURING MGR.: ________________________ DATE: ____________

ENGINEERING MGR.: ________________________ DATE: ____________

QUALITY MGR.: ________________________ DATE: ____________

PREPARED BY: ________________________ DATE: ____________

1.0 Purpose

The purpose of this procedure is to provide the required properties and specifications in the mixing of sand.

2.0 Scope:

This procedure applies to cores made at the 600 LBS mixer.

3.0 Definitions:

OPS - Oberdorfer Process Specifications
L.O.I. - Loss on Ignition

4.0 Associated Materials:

OPS - 4190 - MIXER CALIBRATION
OPS - 3178 - WEDRON GRADE 520 SAND
OPS - 9185 - DRY SAND CONTROL
KLOSTER OPERATORS' MANUAL

5.0 Procedure:

5.1 SPECIFICATIONS:

5.1.1 Core Hardness:	40 - 70
5.1.2 Tensile Strength:	100 - 175 psi (Recommended 120 - 175)
5.1.3 Permeability:	100 - 200 (Recommended 125 - 175)
5.1.4 Loss on Ignition:	1.0 - 1.5
5.1.5 Grain Fineness:	62 ± 5

PROCESS SPECIFICATION
AIRSET MIX # 1 (1.125 %)

5.2 MATERIAL USED:

MATERIAL		QUANTITY	
		HIGH LIMIT	LOW LIMIT
5.2.1	Wedron 520 AFS 62 Blended with Reclaimed sand	475 LBS. / min.	480 LBS. / min.
5.2.2	ASHLAND 1670 - 55% Ratio Part I	3.26 LBS. / min	3.30 LBS. / min.
5.2.3	ASHLAND 2670 - 45% Ratio Part II	2.67 LBS. / min	2.70 LBS. / min.

5.3 MIXER SETTINGS: See operators' manual.

5.4 APPEARANCE: Sand must be free from lumps, inclusions, etc.

OBERDORFER L.L.C.

PROCESS SPECIFICATION
ISOCURE / COLD BOX MIX # 1 (1.125%) - ISOCURE STANDARD RECIPE

MANUFACTURING MGR.: ________________________ DATE: ____________

ENGINEERING MGR.: ________________________ DATE: ____________

QUALITY MGR.: ________________________ DATE: ____________

PREPARED BY: ________________________ DATE: ____________

1.0 Purpose

The purpose of this procedure is to provide the required properties and specifications in the mixing of 1.125-% sand.

2.0 Scope:

This procedure applies to

Recipe #1A for cores requiring the use of potassium fluobohrate.
Recipe #1B for cores not requiring potassium fluobohrate.

3.0 Definitions:

OPS – Oberdorfer Process Specification

4.0 Associated Materials:

OPS - 3178 - WEDRON GRADE 520 SAND
OPS - 9185 - DRY SAND CONTROL
OPS - 4085 - MIXER OPERATION

5.0 Procedure:

5.1 SAND MIX SPECIFICATIONS: (Checked as required)

5.1.1 Core Hardness:	45 - 75
5.1.2 Tensile Strength:	125 - 215 psi (Recommended 130 - 185)
5.1.3 Permeability:	100 - 200 (Recommended 125 - 175)
5.1.4 Loss on Ignition:	1.125 - 1.625
5.1.5 Grain Fineness:	62 ± 5

PROCESS SPECIFICATION
ISOCURE / COLD BOX MIX # 1 (1.125%) - ISOCURE STANDARD RECIPE

5.2 MATERIAL USED:

5.2.1 RECIPE #1A WITH POTASSIUM:

	Material	QUANTITY
5.2.1.1	Wedron 520 AFS 62	300 LBS
5.2.1.2	Potassium Fluobohrate	272 grams/ minute (0.60 LBS./MIN)
5.2.1.3	ASHLAND 373 PART I	843 grams/ minute (1.856 LBS./MIN)
5.2.1.4	ASHLAND 674 Part II	690 grams/ minute (1.518 LBS./MIN)

5.2.2 RECIPE #1B WITHOUT POTASSIUM:

	Material	QUANTITY
5.2.2.1	Wedron 520 AFS 62	300 LBS
5.2.2.2	ASHLAND 373 PART I	843 grams/ minute (1.856 LBS./MIN)
5.2.2.3	ASHLAND 674 Part II	690 grams/ minute (1.518 LBS./MIN)

5.3 MIXING:

5.3.1 Automatic mixer based on pre-set timer for sand quantity required (100, 200 OR 300 LBS.). See OPS – 4085.

5.4 APPEARANCE:

5.4.1 Sand must be free of lumps, inclusions, etc.

5.5 SHELF LIFE:

5.5.1 Sand may be held maximum 2 hours.

Appendix C

SOILD WASTE CONTROL PLAN
NORTHERN INDUSTRIAL HOLDINGS LLC
6259 THOMPSON ROAD, DEWITT, NEW YORK
JANUARY 2014

1.0 INTRODUCTION

Oberdorfer conducted aluminum foundry operations at the Property, ceasing operations in June 2013. A byproduct of the aluminum casting process is foundry sand, of which there are currently approximately 16,000 tons stockpiled at the Property. The sands were mixed with polymers and molded under heat and pressure to form cavities for the casting process. After the castings were cooled, the sands were knocked out and removed as waste. The sands are stored in six (6) piles, labeled A through F, of varying sizes located on the western and southwestern portions of the site.

Northern Industrial Holdings LLC, the current owner of the property, identified a potential beneficial use for the existing foundry sands as a fill for a development site. The foundry sands have been delineated to ensure that no hazardous materials are used.

The acceptable sands will be crushed and screened to break the particles down to the proper size and specification and remove debris, including core butts and metal scraps. The material will then be spread out on the site.

1.1 Property Description

The Property occupies approximately 17.91 acres of improved land located on the west side of Thompson Road in the Town of Dewitt, New York, as shown on Figure 1 - Site Location Map and Figure 2 – Aerial Property Plan, attached in Appendix I to the BUD application. The subject property consists of one parcel: An approximate 17.91-acre property with five one-story brick buildings totaling approximately 220,000 square feet (sf) - Tax Map ID No. 033.04-10.2. The main building remains standing as of mid-January 2014, but is scheduled for demolition. The smaller buildings have already been demolished.

1.2 Plan Objectives

Development, implementation, and maintenance of this SWCP is intended to provide Northern Industrial Holdings LLC and their construction contractors and subcontractors with a framework for managing the foundry sands while reducing soil erosion and minimizing pollutants in stormwater during the processing, screening, and spreading of the foundry sands.

This SWCP will:

- Define the physical characteristics and site features;
- Describe the type of processing which will be occurring;

- Describe the practices that will be implemented to control erosion and the release of pollutants in stormwater;

- Create an implementation schedule to ensure that the practices described in this SWCP are in fact implemented and to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in stormwater discharged from the site; and

- Describe the final close out steps for the project after processing and reuse of the foundry sands are complete.

2.0 FOUNDRY SAND PROCESSING AND HANDLING

Approximately 16,000 tons of stockpiled foundry sands are currently located at the former Oberdorfer facility in Syracuse, New York. The sands are a byproduct of the aluminum casting process. The sands were mixed with polymers and molded under heat and pressure to form cavities for the casting process. After the castings have cooled, the sands are knocked out and removed as waste. The sands are stored in six (6) piles, labeled A through F, of varying sizes located on the western and southwestern portions of the site.

The foundry sands will require processing and screening prior to on-site use. Miscellaneous debris, such as core butts, metal scraps, including aluminum slivers, trash and wood will be removed.

The foundry sands may require periodic testing if is determined that material composition has changed. If additional material testing is required the following analytical and physical testing will be conducted:

- Total RCRA Metals in accordance with USEPA Method 6010C plus aluminum, cobalt and copper; and
- Semi-Volatile Organics in accordance with USEPA Method 8270B
- Particle size analysis of soils ASTM D422.

However, no new source material is being added to the stockpiled foundry sands. Therefore, further analytical testing activities are not planned.

3.0 EROSION AND SEDIMENT CONTROL PLAN

Erosion and sediment control measures have been developed in conformance with the current NYS Standards and Specification for Erosion and Sediment Control (aka Blue Book).

3.1 Temporary Structural Erosion and Sediment Control Measures

Temporary structural erosion and sediment control measures to be implemented during processing activities will include:

- Installation of approximately 850 linear feet of erosion silt fence to control soil erosion from around the perimeter of the site as a result of screening activities; and
- Installation of silt fencing, filter fabric protection for drop inlets and temporary check dams along Thompson Road at catch basin located immediately adjacent to the Property

3.2 Vegetative Erosion and Sediment Control Measures

Vegetative erosion and sediment control measures to be implemented during the construction activities include: none, given that the intent of using the sand on site is to bring it up to grade.

3.3 Permanent Structural Erosion and Sediment Control Measures

Permanent structural erosion and sediment control measures to be implemented during the construction activities include re-grading land areas that have been impacted by the construction activities. The permanent erosion and sediment control measures include stormwater management and treatment units.

3.4 Construction Sequence Schedule

The screening and crushing of the stockpiled foundry sands will be conducted by a to-be-determined contractor and will occur next to the source pile. The contractor will then spread out the processed sand to bring the site up to grade. Any remaining materials will be disposed of as C&D material. No material will remain in the crushing and screening area for a period greater than ninety (90) days.

3.5 Maintenance and Inspection Plan

1) All erosion and sediment control measures will be inspected for stability and operation following every runoff-producing rainfall event greater than 0.5 inches, and in no case less than once every week.

2) The inspections will verify that all practices are adequately operational, maintained properly, and that sediment is removed from all control structures. The inspection will look for evidence of soil erosion on site, potential pollutants entering drainage systems, problems at discharge points (such as turbidity in receiving water), and signs of soil and mud transport from the site.

3) Any repairs will be made immediately to maintain all practices as designed.

4) Sediment will be removed from any sediment traps when their storage capacity has been approximately 50% filled.

5) Sediment will be removed from behind the sediment fence when it becomes approximately 0.5 ft deep at the fence. The sediment fence will be repaired, as necessary, to maintain a barrier.

6) Inspection and maintenance activities will be documented in a log book or other appropriate media and maintained on-site.

7) Northern Industrial Holdings and/or its designated representative(s) will be responsible for conducting the maintenance inspections and ensuring corrective measures are adequately conducted in a timely manner.

Appendix D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-41728-1
Client Project/Site: Oberdorfer

For:
Safety-Kleen Systems, Inc
6741 Vip Parkway
Syracuse, New York 13211

Attn: Sean Dolan

Melissa Deyo

Authorized for release by:
7/16/2013 11:30:01 AM
Melissa Deyo, Project Manager I
melissa.deyo@testamericainc.com

Designee for

John Schove, Project Manager I
john.schove@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Job ID: 480-41728-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-41728-1

Receipt
The samples were received on 7/11/2013 2:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Detection Summary

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Client Sample ID: Oberdorfer (1)

Lab Sample ID: 480-41728-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.12		0.0020	0.00070	mg/L	1		6010B	TCLP
Chromium	0.031		0.0040	0.0010	mg/L	1		6010B	TCLP
Lead	0.0072		0.0050	0.0030	mg/L	1		6010B	TCLP
Silver	0.0099		0.0030	0.0017	mg/L	1		6010B	TCLP

Client Sample ID: Oberdorfer (2)

Lab Sample ID: 480-41728-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.010		0.010	0.0056	mg/L	1		6010B	TCLP
Barium	0.18		0.0020	0.00070	mg/L	1		6010B	TCLP
Chromium	0.030		0.0040	0.0010	mg/L	1		6010B	TCLP
Lead	0.017		0.0050	0.0030	mg/L	1		6010B	TCLP
Silver	0.0057		0.0030	0.0017	mg/L	1		6010B	TCLP

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Client Sample ID: Oberdorfer (1)

Lab Sample ID: 480-41728-1

Date Collected: 07/10/13 15:15
Date Received: 07/11/13 02:00

Matrix: Water

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		07/15/13 11:40	07/16/13 01:19	1
Barium	**0.12**		0.0020	0.00070	mg/L		07/15/13 11:40	07/16/13 01:19	1
Cadmium	ND		0.0010	0.00050	mg/L		07/15/13 11:40	07/16/13 01:19	1
Chromium	**0.031**		0.0040	0.0010	mg/L		07/15/13 11:40	07/16/13 01:19	1
Lead	**0.0072**		0.0050	0.0030	mg/L		07/15/13 11:40	07/16/13 01:19	1
Selenium	ND		0.015	0.0087	mg/L		07/15/13 11:40	07/16/13 01:19	1
Silver	**0.0099**		0.0030	0.0017	mg/L		07/15/13 11:40	07/16/13 01:19	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		07/15/13 12:15	07/15/13 16:30	1

Client Sample ID: Oberdorfer (2)

Lab Sample ID: 480-41728-2

Date Collected: 07/10/13 15:15
Date Received: 07/11/13 02:00

Matrix: Water

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.010**		0.010	0.0056	mg/L		07/15/13 11:40	07/16/13 01:22	1
Barium	**0.18**		0.0020	0.00070	mg/L		07/15/13 11:40	07/16/13 01:22	1
Cadmium	ND		0.0010	0.00050	mg/L		07/15/13 11:40	07/16/13 01:22	1
Chromium	**0.030**		0.0040	0.0010	mg/L		07/15/13 11:40	07/16/13 01:22	1
Lead	**0.017**		0.0050	0.0030	mg/L		07/15/13 11:40	07/16/13 01:22	1
Selenium	ND		0.015	0.0087	mg/L		07/15/13 11:40	07/16/13 01:22	1
Silver	**0.0057**		0.0030	0.0017	mg/L		07/15/13 11:40	07/16/13 01:22	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		07/15/13 12:15	07/15/13 16:32	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 480-128873/1-A
Matrix: Water
Analysis Batch: 129018
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 128873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		07/15/13 11:40	07/16/13 01:15	1
Barium	ND		0.0020	0.00070	mg/L		07/15/13 11:40	07/16/13 01:15	1
Cadmium	ND		0.0010	0.00050	mg/L		07/15/13 11:40	07/16/13 01:15	1
Chromium	ND		0.0040	0.0010	mg/L		07/15/13 11:40	07/16/13 01:15	1
Lead	ND		0.0050	0.0030	mg/L		07/15/13 11:40	07/16/13 01:15	1
Selenium	ND		0.015	0.0087	mg/L		07/15/13 11:40	07/16/13 01:15	1
Silver	ND		0.0030	0.0017	mg/L		07/15/13 11:40	07/16/13 01:15	1

Lab Sample ID: LCS 480-128873/2-A
Matrix: Water
Analysis Batch: 129018
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 128873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.02		mg/L		102	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Cadmium	1.00	1.02		mg/L		102	80 - 120
Chromium	1.00	1.04		mg/L		104	80 - 120
Lead	1.00	1.05		mg/L		105	80 - 120
Selenium	1.00	1.01		mg/L		101	80 - 120
Silver	1.00	0.962		mg/L		96	80 - 120

Lab Sample ID: 480-41728-2 MS
Matrix: Water
Analysis Batch: 129018
Client Sample ID: Oberdorfer (2)
Prep Type: TCLP
Prep Batch: 128873

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.010		1.00	1.11		mg/L		110	75 - 125
Barium	0.18		1.00	1.23		mg/L		105	75 - 125
Cadmium	ND		1.00	1.06		mg/L		106	75 - 125
Chromium	0.030		1.00	1.06		mg/L		103	75 - 125
Lead	0.017		1.00	1.08		mg/L		106	75 - 125
Selenium	ND		1.00	1.12		mg/L		112	75 - 125
Silver	0.0057		1.00	0.979		mg/L		97	75 - 125

Lab Sample ID: 480-41728-2 MSD
Matrix: Water
Analysis Batch: 129018
Client Sample ID: Oberdorfer (2)
Prep Type: TCLP
Prep Batch: 128873

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.010		1.00	1.14		mg/L		113	75 - 125	3	20
Barium	0.18		1.00	1.23		mg/L		105	75 - 125	0	20
Cadmium	ND		1.00	1.09		mg/L		109	75 - 125	3	20
Chromium	0.030		1.00	1.08		mg/L		105	75 - 125	1	20
Lead	0.017		1.00	1.10		mg/L		109	75 - 125	2	20
Selenium	ND		1.00	1.15		mg/L		115	75 - 125	2	20
Silver	0.0057		1.00	0.983		mg/L		98	75 - 125	0	20

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-128882/1-A
Matrix: Water
Analysis Batch: 128938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 128882

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		07/15/13 12:15	07/15/13 16:23	1

Lab Sample ID: LCS 480-128882/2-A
Matrix: Water
Analysis Batch: 128938

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 128882

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00712		mg/L		107	80 - 120

Lab Sample ID: 480-41728-2 MS
Matrix: Water
Analysis Batch: 128938

Client Sample ID: Oberdorfer (2)
Prep Type: TCLP
Prep Batch: 128882

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00695		mg/L		104	75 - 125

Lab Sample ID: 480-41728-2 MSD
Matrix: Water
Analysis Batch: 128938

Client Sample ID: Oberdorfer (2)
Prep Type: TCLP
Prep Batch: 128882

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00707		mg/L		106	75 - 125	2	20

Metals

Leach Batch: 128851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-41728-1	Oberdorfer (1)	TCLP	Water	1311	
480-41728-2	Oberdorfer (2)	TCLP	Water	1311	
480-41728-2 MS	Oberdorfer (2)	TCLP	Water	1311	
480-41728-2 MSD	Oberdorfer (2)	TCLP	Water	1311	

Prep Batch: 128873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-41728-1	Oberdorfer (1)	TCLP	Water	3010A	128851
480-41728-2	Oberdorfer (2)	TCLP	Water	3010A	128851
480-41728-2 MS	Oberdorfer (2)	TCLP	Water	3010A	128851
480-41728-2 MSD	Oberdorfer (2)	TCLP	Water	3010A	128851
LCS 480-128873/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 480-128873/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 128882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-41728-1	Oberdorfer (1)	TCLP	Water	7470A	128851
480-41728-2	Oberdorfer (2)	TCLP	Water	7470A	128851
480-41728-2 MS	Oberdorfer (2)	TCLP	Water	7470A	128851
480-41728-2 MSD	Oberdorfer (2)	TCLP	Water	7470A	128851
LCS 480-128882/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 480-128882/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 128938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-41728-1	Oberdorfer (1)	TCLP	Water	7470A	128882
480-41728-2	Oberdorfer (2)	TCLP	Water	7470A	128882
480-41728-2 MS	Oberdorfer (2)	TCLP	Water	7470A	128882
480-41728-2 MSD	Oberdorfer (2)	TCLP	Water	7470A	128882
LCS 480-128882/2-A	Lab Control Sample	Total/NA	Water	7470A	128882
MB 480-128882/1-A	Method Blank	Total/NA	Water	7470A	128882

Analysis Batch: 129018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-41728-1	Oberdorfer (1)	TCLP	Water	6010B	128873
480-41728-2	Oberdorfer (2)	TCLP	Water	6010B	128873
480-41728-2 MS	Oberdorfer (2)	TCLP	Water	6010B	128873
480-41728-2 MSD	Oberdorfer (2)	TCLP	Water	6010B	128873
LCS 480-128873/2-A	Lab Control Sample	Total/NA	Water	6010B	128873
MB 480-128873/1-A	Method Blank	Total/NA	Water	6010B	128873

Lab Chronicle

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Client Sample ID: Oberdorfer (1)

Lab Sample ID: 480-41728-1

Date Collected: 07/10/13 15:15
Date Received: 07/11/13 02:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			128851	07/15/13 10:56	MRB	TAL BUF
TCLP	Prep	7470A			128882	07/15/13 12:15	JRK	TAL BUF
TCLP	Analysis	7470A		1	128938	07/15/13 16:30	JRK	TAL BUF
TCLP	Leach	1311			128851	07/15/13 10:56	MRB	TAL BUF
TCLP	Prep	3010A			128873	07/15/13 11:40	JMM1	TAL BUF
TCLP	Analysis	6010B		1	129018	07/16/13 01:19	AMH	TAL BUF

Client Sample ID: Oberdorfer (2)

Lab Sample ID: 480-41728-2

Date Collected: 07/10/13 15:15
Date Received: 07/11/13 02:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			128851	07/15/13 10:56	MRB	TAL BUF
TCLP	Prep	7470A			128882	07/15/13 12:15	JRK	TAL BUF
TCLP	Analysis	7470A		1	128938	07/15/13 16:32	JRK	TAL BUF
TCLP	Leach	1311			128851	07/15/13 10:56	MRB	TAL BUF
TCLP	Prep	3010A			128873	07/15/13 11:40	JMM1	TAL BUF
TCLP	Analysis	6010B		1	129018	07/16/13 01:22	AMH	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	04-01-14

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Safety-Kleen Systems, Inc
Project/Site: Oberdorfer

TestAmerica Job ID: 480-41728-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-41728-1	Oberdorfer (1)	Water	07/10/13 15:15	07/11/13 02:00
480-41728-2	Oberdorfer (2)	Water	07/10/13 15:15	07/11/13 02:00

Chain of Custody Record

Temperature on Receipt ______

Drinking Water? Yes ☐ No ☑

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: Safety-Kleen	Project Manager: Sean Dolan	Date: 7/10/13	Chain of Custody Number: 22[illegible]
Address: 6741 VIP Pkwy.	Telephone Number (Area Code)/Fax Number: (315) 427-1816	Lab Number	Page 1 of 1
City: Syracuse; State: NY; Zip Code: 13211	Site Contact / Lab Contact: J. Sitfore	Analysis (Attach list if more space is needed): TCLP Metals	
Project Name and Location (State): Oberdorfer	Carrier/Waybill Number		Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	TCLP Metals	Special Instructions/ Conditions of Receipt
Oberdorfer (1)	7/10/13	3:15		✓										
Oberdorfer (2)	7/10/13	3:15		✓										

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☑ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ______

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Sean Dolan	7/10/13	3:25	1. Received By: R. Einglish, Syr	7-10-13	15:25
2. Relinquished By: R. Einglish	7-10-13	19:00	2. Received By: [illegible] TAL	7-11-13	1200
3. Relinquished By			3. Received By		

Comments

3.9 #1

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: Safety-Kleen Systems, Inc　　　　Job Number: 480-41728-1

Login Number: 41728　　　　**List Source: TestAmerica Buffalo**
List Number: 1
Creator: Wienke, Robert K

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	False	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix E

ATLANTIC TESTING LABORATORIES

Syracuse
6085 Court Street Rd., Suite A
Syracuse, NY 13206
315-699-5281 (T)
315-699-3374 (F)

TRANSMITTAL

December 9, 2013

Northern Industrial Holdings, LLC
7144 E. Doubletree Ranch Road, Suite 190
Scottsdale, Arizona 85258

Attn: Mr. John Pacheco

Re: Soil Sampling and Analysis
Former Oberdorfer Foundry
ATL Report No. ST5602CE-01-12-13

Dear Mr. Pacheco:

In accordance with your request and Atlantic Testing Laboratories, Limited (ATL) contract no. ST5998-55X-11-13, dated November 27, 2013, soil sampling and analysis services were provided for a soil stockpile located at the Former Oberdorfer Foundry, 6259 Thompson Road, Dewitt, Onondaga County, New York on November 26, 2013.

As directed by the representative of Northern Industrial Holdings, LLC, the sample was collected from Stockpile A of the referenced site. The sample was collected utilizing manual soil sampling equipment (i.e., Shovel) and was comprised of 5 discrete grab samples at depths of 6 to 8-inches.

Enclosed is a copy of the laboratory report for the soil sample that was collected by ATL. The appropriate custody documentation was completed and the sample was submitted to Pace Analytical Services, Inc., located in Schenectady, New York, for metals and semi-volatile organic compounds (SVOC) analysis. As indicated in the enclosed laboratory analysis report, the sample collected by ATL was determined to contain detectable concentrations of Metals and SVOC.

Please contact our office should you have any questions or if we may be of further service.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited

Andrew S. Amell
Project Manager

DRO/aa

Enclosure

cc: Mr. David Paltzik, Northern Industrial Holdings, LLC
Ms. Melody D. Scalfone, Esq., Scalfone Law, PLLC

Pace Analytical e-Report

***Issuance of this report is prior to full data package.**

Report prepared for:
ATLANTIC TESTING LABORATORIES, LTD
22 CORPORATE DR
CLIFTON PARK, NY 12065
CONTACT: C. DASHNAW

Project ID: ST5202 SAND SAMPLING
Sampling Date(s): November 26, 2013
Lab Report ID: 13110648
Client Service Contact: Kelly Miller (518) 346-4592 ext. 3844

Analysis Included:
Metals by ICP (Custom)
SVOCs by GCMS (Sub Contract to ADK)

Test results meet all National Environmental Laboratory Accreditation Conference (NELAC) requirements unless noted in the case narrative. The results contained within the document relate only to the samples included in this report. Pace Analytical is responsible only for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

Dan Pfalzer
Laboratory Director

Certifications: New York (EPA: NY00906, ELAP: 11078), New Jersey (NY026), Connecticut (PH-0337), Massachusetts (M-NY906), Virginia (1884)

Pace Analytical Services, Inc. | 2190 Technology Drive | Schenectady, NY 12308
Phone: 518.346.4592 | internet: www.pacelabs.com

FOIL247707

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FOIL247708

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FOIL247709

CASE NARRATIVE

December 06, 2013

CASE NARRATIVE

This data package (SDG ID: 13110648) consists of 1 soil sample received on 11/27/2013. The sample is from Project Name: ST5202 SAND SAMPLING.

This sample delivery group consists of the following samples:

Lab Sample ID	Client ID	Collection Date
AQ41377	PILE A - NORTHEAST AREA	11/26/2013 14:30

1

Sample Delivery and Receipt Conditions

(1.) All samples were delivered to the laboratory via FEDEX delivery service on 11/27/2013.

(2.) All samples were received at the laboratory intact and within holding times.

(3.) All samples were received at the laboratory properly preserved, if applicable.

Metals Analysis by ICP

Analysis for metals was performed by method SW-846 6010C. The following technical and administrative items were noted for the analysis:

(1.) The relative percent difference between the sample and the duplicate sample was outside quality acceptance limits for sample (LAB ID: AQ41377D). Please see associated duplicate form for details.

(2.) Antimony was observed in the Method Blank sample. All associated positive sample concentration results have been flagged (B) to denote the observed contamination.

(3.) The Sample (LAB ID: AQ41377) was re-analyzed at a secondary dilution to bring all analytes within the calibration range of the instrument. Results for both analyses are provided in this data package.

Subcontracted Semivolatiles

Please see included results for subcontracted semivolatile analysis by method 8270 from Adirondack laboratory

Respectfully submitted,

Dan Pfalzer

Dan Pfalzer
Laboratory Director

S:\Lims Data\1311\13110648\Package\CN_13110648_Rev00.doc

FOIL247711

2

QUALIFIERS

FOIL247712

Qualifier Definitions

Organic Laboratory Qualifiers

B - Denotes analyte observed in associated method blank or extraction blank. Analyte concentration should be considered as estimated.

D - Surrogate recovery not evaluated against control limits due to sample dilution.

E - Denotes analyte concentration exceeded calibration range of instrument. Sample could not be re-analyzed at secondary dilution due to insufficient sample amount, quick turn-around request, sample matrix interference or hold time excursion. Concentration result should be considered as estimated.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the Practical Quantitation Limit (PQL).

P - Indicates relative percent difference (RPD) between primary and secondary gas chromatograph (GC) column analysis exceeds 40 % or indicates percent difference (PD) between primary and secondary gas chromatograph (GC) column analysis exceeds 25 %.

U - Denotes analyte not detected at concentration greater than the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

Z - Chromatographic interference due to polychlorinated biphenyl (PCB) co-elution.

* - Value not within control limits.

Inorganic Laboratory Qualifiers

B - Denotes analyte observed in associated method blank or digestion blank. Analyte concentration should be considered as estimated.

E - Denotes analyte concentration exceeded calibration range of instrument. Sample could not be re-analyzed at secondary dilution due to insufficient sample amount, quick turn-around request, sample matrix interference or hold time excursion. Concentration result should be considered as estimated.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the Practical Quantitation Limit (PQL).

U - Denotes analyte not detected at concentration greater than the Practical Quantitation Limit (PQL). PQLs are adjusted for sample weight/volume and dilution factors.

* - Value not within control limits.

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SAMPLE CHAIN OF CUSTODY

FOIL247714

<13110648P1>

131106481

ATLANTIC TESTING LABORATORIES

Environmental Chain-Of-Custody Record

6805

Albany	Binghamton	Canton	Elmira	Plattsburgh	Poughkeepsie	Rochester	Syracuse	Utica	Watertown
22 Corporate Drive, Clifton Park, NY 12065, 518/383-9144 (T), 518/383-9166 (F)	126 Park Avenue, Binghamton, NY 13903, 607/773-1812 (T), 607/773-1835 (F)	6431 U.S. Highway 11, Canton, NY 13617, 315/386-4578 (T), 315/386-1012 (F)	2330 Route 352, Corning, NY 14903, 607/737-0700 (T), 607/737-0714 (F)	130 Arizona Ave, Plattsburgh, NY 12903, 518/563-5878 (T), 518/562-1321 (F)	251 Upper North Road, Highland, NY 12528, 845/691-6098 (T), 845/691-6099 (F)	3445 Winton Road, Rochester, NY 14623, 585/427-9020 (T), 585/427-9021 (F)	6085 Court Street Road, Syracuse, NY 13206, 315/699-5281 (T), 315/699-3374 (F)	301 St. Anthony Street, Utica, NY 13501, 315/735-3309 (T), 315/735-0742 (F)	26581 NYS Route 283, Watertown, NY 13601, 315/786-7887 (T), 315/786-2022 (F)

Project No.	STS202
Page	1 of 1
Client Name	Northern Industrial Holdings, LLC
Project Contact:	Cheyenne Dashnaw
Project Name:	Sand Sampling
QA/QC Code	☐ NYSDEC ☐ SW-846 ☐ NYSDOH ☐ CLP ☐ Other
Project Location	

Report Distribution

Dates Required:	1-Week TAT
Send Report To:	cdashnaw@atlantictesting.com aarnell@atlantictesting.com
Fax Results:	☑ YES ☐ NO

Custody Seal: X= intact

Date	Time	Sample Location	Sample Type	No. of Containers	Semi-VOCs (see attached Custom List)	Metals (see attached Custom List)							Laboratory Identification No.	Field Notes
11/26/13	1430	Pile A - Northeast Area	C/S	5	X	X							AQ41377	South extent of area of concern

Samplers Name:	Andrew Arnell	Date:	11/26/13	Received for Name:		Date:	
Samplers Signature:	A Arll	Time:	1500	Laboratory Signature:		Time:	

Shipment Rec'd Intact? ☒ YES ☐ NO

Samples Relinquished By:		Date/Time		Samples Received By:		Date/Time	
Name:	Andrew Arnell	Date:	11/26/13	Name:	Fedex	Date:	
Signature:	A Arll	Time:	1700	Signature:		Time:	
Name:	Fedex	Date:	11/27/13	Name:	Chris Relow	Date:	11/27/13
Signature:		Time:	9:54	Signature:	C Rl	Time:	9:54

Sample Type Code Key:

Description		Matrix	
C	Composite	DW	Drinking Water
G	Grab	GW	Groundwater
Q	QA/QC	O	Oil
O	Other	S	Soil
		SL	Sludge
		WW	Wastewater

Laboratory Remarks

Temp: 4.6°C (IR)

Think Quality

FOIL247715

ENV-001B

Distribution: White with Samples, Yellow to Laboratory, Pink to ATL Files

pdrive:Forms\Environmental\OfficeForms\Environmental Chain-Of-Custody Record rev 2: 09/07

3

3

TARGET COMPOUNDS SVOCs
2-METHYLNAPHTHALENE
ACENAPHTHENE
ACENAPHTHYLENE
ANTHRACENE
BENZO(A)ANTHRACENE
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
BENZO(G,H,I)PERYLENE
BENZO(K)FLUORANTHENE
BIPHENYL (DIPHENYL)
BIS(2-ETHYLHEXYL) PHTHALATE
CARBAZOLE
CHRYSENE
DIBENZ(A,H)ANTHRACENE
DIBENZOFURAN
DI-N-BUTYL PHTHALATE
DI-N-OCTYLPHTHALATE
FLUORANTHENE
FLUORENE
INDENO(1,2,3-C,D)PYRENE
NAPHTHALENE
PHENANTHRENE
PHENOL
PYRENE

<13110648P2>

131106482

FOIL247716

TARGET COMPOUNDS METALS
ALUMINUM
ANTIMONY
ARSENIC
BARIUM
BERYLLIUM
CADMIUM
CHROMIUM, TOTAL
COBALT
COPPER
LEAD
NICKEL
THALLIUM
VANADIUM
ZINC

3

<13110648P3>

131106483

FOIL247717

SAMPLE RECEIPT

4

FOIL247718

Pace Analytical®

SAMPLE RECEIPT REPORT
13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

CLIENT: ATLANTIC TESTING LABORATORIES, LTD
PROJECT: ST5202 SAND SAMPLING
LRF: 13110648
REPORT: ANALYTICAL REPORT
EDD: YES
LRF TAT: 1 WEEK

RECEIVED DATE: 11/27/2013 09:54
SHIPPED VIA: FEDEX
SHIPPING ID: 802644225227
NUMBER OF COOLERS: 1
CUSTODY SEAL INTACT: YES
COOLER STATUS: CHILLED
TEMPERATURE(S): [5]4.6 (IR) °C

SAMPLE SEALS INTACT: NA
[1,2]**SAMPLES PRESERVED PER METHOD GUIDANCE:** YES
[3] **SAMPLES REC'D IN HOLDTIME:** YES
DISPOSAL: BY LAB (45 DAYS)
COC DISCREPANCY: NO

COMMENTS:

CLIENT ID (LAB ID)	TAT-DUE Date[4]	DATE-TIME SAMPLED	MATRIX	METHOD	TEST DESCRIPTION	QC REQUESTED
PILE A - NORTHEAST AREA (AQ41377)	1 WEEK 12-06-13	11/26/2013 14:30	Soil	SW-846 6010C	Metals by ICP (Custom)	
	1 WEEK 12-06-13	11/26/2013 14:30	Soil	SW-846 8270D	SVOCs by GCMS	

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[1]The pH preservation check of Oil and Grease (Method 1664) is performed as soon as possible after sample receipt and may not be included in this report.
[2]The pH preservation check of aqueous volatile samples is not performed until after the analysis of the sample to maintain zero headspace and is not included in this report.
[3]Samples received for pH analysis are not marked as a hold time exceedance here. SW-846 methods suggests analysis to be done within 15 minutes of sample collection. Because of transportation time it is not possible for the laboratory to perform the test in that time. Sample Certificates of Analysis reports are noted as such.
[4]Samples arriving at the laboratory after 4:00 pm are assigned a due date as if they arrived the following business day unless other arrangements have been made.
[5]All samples which require thermal preservation shall be considered acceptable when received greater than 6 degrees Celsius if they are collected on the same day as received and there is evidence that the chilling process has begun, such as arrival on ice.Control limits are between 0-6 Degrees Celsius. Control limits do not apply for metals analysis.

Reporting Parameters and Lists

SW-846 6010C - Metals by ICP (Custom) - (mg/kg)

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Nickel
Thallium
Vanadium
Zinc

SW-846 8270D - SVOCs by GCMS - (ug/kg)

2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Biphenyl
bis(2-Ethylhexyl)phthalate
Carbazole
Chrysene
Dibenz(a,h)anthracene
Dibenzofuran
Di-n-butylphthalate
Di-n-octylphthalate
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Phenol
Pyrene

FOIL247719

Metals - ICP

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FOIL247720

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Analytical Sample Results

Job Number: 13110648

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: PILE A - NORTHEAST AREA
Lab Sample ID: 13110648-01 (AQ41377)

Collection Date: 11/26/2013 14:30
Sample Matrix: SOIL
Received Date: 11/27/2013 09:54
Percent Solid: 94.8 - Results are based on dry weight unless otherwise noted.

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-56	SW-846 6010C	12/04/2013 18:45	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:39	CYC	0.507 g	50.0 mL	NA

Analyte	CAS No.	Result (mg/kg)	PQL	Dilution Factor	Flags	File ID
Aluminum	7429-90-5	**1230**	5.20	1.00		ICP2-871-56
Antimony	7440-36-0	**0.528**	0.520	1.00	B	ICP2-871-56
Arsenic	7440-38-2	ND	0.520	1.00	U	ICP2-871-56
Barium	7440-39-3	**7.07**	0.520	1.00		ICP2-871-56
Beryllium	7440-41-7	ND	0.416	1.00	U	ICP2-871-56
Cadmium	7440-43-9	ND	0.416	1.00	U	ICP2-871-56
Chromium	7440-47-3	**2.48**	0.520	1.00		ICP2-871-56
Cobalt	7440-48-4	ND	0.520	1.00	U	ICP2-871-56
Copper	7440-50-8	**17.9**	0.520	1.00		ICP2-871-56
Lead	7439-92-1	**1.67**	0.520	1.00		ICP2-871-56
Nickel	7440-02-0	**7.77**	0.520	1.00		ICP2-871-56
Thallium	7440-28-0	ND	1.04	1.00	U	ICP2-871-56
Vanadium	7440-62-2	ND	0.520	1.00	U	ICP2-871-56
Zinc	7440-66-6	**8.71**	0.520	1.00		ICP2-871-56

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.
B - Denotes analyte observed in associated method blank at a concentration exceeding the PQL.

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FOIL247721

Quality Control Samples (Field)

6

FOIL247722

Quality Control Results
Matrix Spike Sample (MS)

Job Number: 13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: PILE A - NORTHEAST AREA MS
Lab Sample ID: 13110648-01M (AQ41377M)
Collection Date: N/A
Sample Matrix: SOIL
Received Date: N/A
Percent Solid: 94.8 - Results are based on dry weight unless otherwise noted.

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-58	SW-846 6010C	12/04/2013 18:50	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:40	CYC	0.491 g	50.0 mL	NA

Analyte	CAS No.	Result (mg/kg)	PQL	Dilution Factor	Flags	File ID
Aluminum	7429-90-5	**6870**	5.37	1.00		ICP2-871-58
Antimony	7440-36-0	**98.9**	0.537	1.00	B	ICP2-871-58
Arsenic	7440-38-2	**102**	0.537	1.00		ICP2-871-58
Barium	7440-39-3	**114**	0.537	1.00		ICP2-871-58
Beryllium	7440-41-7	**107**	0.430	1.00		ICP2-871-58
Cadmium	7440-43-9	**105**	0.430	1.00		ICP2-871-58
Chromium	7440-47-3	**122**	0.537	1.00		ICP2-871-58
Cobalt	7440-48-4	**107**	0.537	1.00		ICP2-871-58
Copper	7440-50-8	**137**	0.537	1.00		ICP2-871-58
Lead	7439-92-1	**106**	0.537	1.00		ICP2-871-58
Nickel	7440-02-0	**122**	0.537	1.00		ICP2-871-58
Thallium	7440-28-0	**103**	1.07	1.00		ICP2-871-58
Vanadium	7440-62-2	**106**	0.537	1.00		ICP2-871-58
Zinc	7440-66-6	**112**	0.537	1.00		ICP2-871-58

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Analyte Spiked	CAS No.	Sample (mg/kg)	Added (mg/kg)	MS (mg/kg)	MS % Rec.	Q[1]	Limits (%)
Aluminum	7429-90-5	1230	1070	6870	525	*	75.0-125
Antimony	7440-36-0	0.528	107	98.9	91.6		75.0-125
Arsenic	7440-38-2		107	102	94.8		75.0-125
Barium	7440-39-3	7.07	107	114	99.8		75.0-125
Beryllium	7440-41-7		107	107	99.5		75.0-125
Cadmium	7440-43-9		107	105	97.5		75.0-125
Chromium	7440-47-3	2.48	107	122	111		75.0-125
Cobalt	7440-48-4		107	107	99.3		75.0-125
Copper	7440-50-8	17.9	107	137	111		75.0-125
Lead	7439-92-1	1.67	107	106	97.6		75.0-125
Nickel	7440-02-0	7.77	107	122	106		75.0-125
Thallium	7440-28-0		107	103	95.5		75.0-125
Vanadium	7440-62-2		107	106	98.9		75.0-125
Zinc	7440-66-6	8.71	107	112	96.5		75.0-125

[1]Qualifier column where '*' denotes value outside the control limits. Note: RPD criteria does not apply if either the sample and duplicate sample are not detected.

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.
B - Denotes analyte observed in associated method blank at a concentration exceeding the PQL.

Pace Analytical®

Quality Control Results
Duplicate Sample

Job Number: 13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: PILE A - NORTHEAST AREA DUP
Lab Sample ID: 13110648-01D (AQ41377D)

Collection Date: N/A
Sample Matrix: SOIL
Received Date: N/A
Percent Solid: 94.8 - Results are based on dry weight unless otherwise noted.

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-57	SW-846 6010C	12/04/2013 18:48	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:40	CYC	0.503 g	50.0 mL	NA

Analyte	CAS No.	Result (mg/kg)	PQL	Dilution Factor	Flags	File ID
Aluminum	7429-90-5	**2600**	5.24	1.00		ICP2-871-57
Antimony	7440-36-0	**0.706**	0.524	1.00	B	ICP2-871-57
Arsenic	7440-38-2	ND	0.524	1.00	U	ICP2-871-57
Barium	7440-39-3	**8.01**	0.524	1.00		ICP2-871-57
Beryllium	7440-41-7	ND	0.419	1.00	U	ICP2-871-57
Cadmium	7440-43-9	ND	0.419	1.00	U	ICP2-871-57
Chromium	7440-47-3	**34.0**	0.524	1.00		ICP2-871-57
Cobalt	7440-48-4	**0.546**	0.524	1.00		ICP2-871-57
Copper	7440-50-8	**94.2**	0.524	1.00		ICP2-871-57
Lead	7439-92-1	**1.13**	0.524	1.00		ICP2-871-57
Nickel	7440-02-0	**46.3**	0.524	1.00		ICP2-871-57
Thallium	7440-28-0	ND	1.05	1.00	U	ICP2-871-57
Vanadium	7440-62-2	**1.54**	0.524	1.00		ICP2-871-57
Zinc	7440-66-6	**7.72**	0.524	1.00		ICP2-871-57

			Precision			
Analyte	CAS No.	Duplicate (mg/kg)	Sample (mg/kg)	RPD	Q[1]	Limits (%)
Aluminum	7429-90-5	2600	1230	71.6	*	20
Antimony	7440-36-0	0.706	0.528	28.8		20
Arsenic	7440-38-2	ND	ND			20
Barium	7440-39-3	8.01	7.07	12.4		20
Beryllium	7440-41-7	ND	ND			20
Cadmium	7440-43-9	ND	ND			20
Chromium	7440-47-3	34.0	2.48	173	*	20
Cobalt	7440-48-4	0.546	ND	200		20
Copper	7440-50-8	94.2	17.9	136	*	20
Lead	7439-92-1	1.13	1.67	38.5	*	20
Nickel	7440-02-0	46.3	7.77	143	*	20
Thallium	7440-28-0	ND	ND			20
Vanadium	7440-62-2	1.54	ND	200		20
Zinc	7440-66-6	7.72	8.71	12.1		20

[1]Qualifier column where '*' denotes value outside the control limits. Note: RPD criteria does not apply if either the sample and duplicate sample are not detected.

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.
B - Denotes analyte observed in associated method blank at a concentration exceeding the PQL.

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Quality Control Samples (Lab)

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FOIL247725

Pace Analytical®

Quality Control Results
Method Blank
Job Number: 13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: Method Blank (AQ41377B)
Lab Sample ID: PBS-56
Collection Date: N/A
Sample Matrix: SOIL
Received Date: N/A
Percent Solid: N/A

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-54	SW-846 6010C	12/04/2013 18:41	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:37	CYC	0.507 g	50.0 mL	NA

Analyte	CAS No.	Result (mg/kg)	PQL	Dilution Factor	Flags	File ID
Aluminum	7429-90-5	ND	4.93	1.00	U	ICP2-871-54
Antimony	7440-36-0	**0.542**	0.493	1.00		ICP2-871-54
Arsenic	7440-38-2	ND	0.493	1.00	U	ICP2-871-54
Barium	7440-39-3	ND	0.493	1.00	U	ICP2-871-54
Beryllium	7440-41-7	ND	0.394	1.00	U	ICP2-871-54
Cadmium	7440-43-9	ND	0.394	1.00	U	ICP2-871-54
Chromium	7440-47-3	ND	0.493	1.00	U	ICP2-871-54
Cobalt	7440-48-4	ND	0.493	1.00	U	ICP2-871-54
Copper	7440-50-8	ND	0.493	1.00	U	ICP2-871-54
Lead	7439-92-1	ND	0.493	1.00	U	ICP2-871-54
Nickel	7440-02-0	ND	0.493	1.00	U	ICP2-871-54
Thallium	7440-28-0	ND	0.985	1.00	U	ICP2-871-54
Vanadium	7440-62-2	ND	0.493	1.00	U	ICP2-871-54
Zinc	7440-66-6	ND	0.493	1.00	U	ICP2-871-54

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

FOIL247726

Pace Analytical®

Quality Control Results
Lab Control Sample (LCS)
Job Number: 13110648

Pace Analytical Services, Inc.
2190 Technology Drive
Schenectady, NY 12308
Phone: 518.346.4592
Fax: 518.381.6055

Client: ATLANTIC TESTING LABORATORIES, LTD
Project: ST5202 SAND SAMPLING
Client Sample ID: Lab Control Sample (AQ41377L)
Lab Sample ID: LCS-56
Collection Date: N/A
Sample Matrix: SOIL
Received Date: N/A
Percent Solid: N/A

	Batch ID	Method	Date	Analyst	Init Wt./Vol.	Final Vol.	Column
Analysis 1:	ICP2-871-55	SW-846 6010C	12/04/2013 18:43	JS	NA	NA	NA
Prep 1:	4184	EPA 3050B	12/04/2013 12:38	CYC	0.494 g	50.0 mL	NA

Analyte Spiked	CAS No.	Added (mg/kg)	LCS (mg/kg)	LCS % Rec.	Q[1]	Limits (%)
Aluminum	7429-90-5	8840	8360	94.6		54.1-146
Antimony	7440-36-0	88.2	65.5	74.3		0.00-231
Arsenic	7440-38-2	99.6	95.9	96.2		80.8-119
Barium	7440-39-3	310	291	93.9		83.2-117
Beryllium	7440-41-7	72.3	69.8	96.5		82.2-118
Cadmium	7440-43-9	182	170	93.6		81.9-118
Chromium	7440-47-3	136	131	96.5		80.2-121
Cobalt	7440-48-4	128	122	95.1		82.8-116
Copper	7440-50-8	102	97.6	95.7		81.1-119
Lead	7439-92-1	115	107	93.2		81.8-119
Nickel	7440-02-0	153	148	97.0		82.3-118
Thallium	7440-28-0	174	160	91.8		78.7-122
Vanadium	7440-62-2	97.6	93.1	95.3		77.0-123
Zinc	7440-66-6	161	150	93.3		80.8-119

[1]Qualifier column where '*' denotes value outside the control limits. Note: RPD criteria does not apply if either the sample and duplicate sample are not detected.

ND: Denotes analyte not detected at a concentration greater than the PQL.
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

7

Subcontract Analysis

8

FOIL247728

Adirondack Environmental Services, Inc.
Experience is the solution
314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

December 06, 2013

Kelly Miller
Pace Analytical
2190 Technology Drive
Schenectady, NY 12308

TEL: (518) 346-4592
FAX: (518) 381-6055

Work Order No: 131204077

Project# : 13110648

RE:

Dear Kelly Miller:

Adirondack Environmental Services, Inc received 1 sample on 12/4/2013 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Tara Daniels
Laboratory Manager

Adirondack Environmental Services, Inc

CASE NARRATIVE

CLIENT:	Pace Analytical	**Date:** *06-Dec-13*
Project:		
Lab Order:	131204077	

Sample containers were not supplied by Adirondack Environmental Services.

Qualifiers:

	C - Details are above in Case Narrative
ND - Not Detected at reporting limit	S - LCS Spike recovery outside acceptable limits(+ is over - is under)
J - Analyte detected below quantitation limit	R - Duplication outside acceptable limits
B - Analyte detected in Blank	T - Tentatively Identified Compound-Estimated
X - Exceeds maximum contamination limit	E -Above quantitation range-Estimated
H - Hold time exceeded	M - Matrix Spike outside acceptable limits(+ is over - is under)

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *06-Dec-13*

CLIENT:	Pace Analytical	**Client Sample ID:**	Pile A-Northeast Area
Work Order:	131204077	**Collection Date:**	11/26/2013
Reference:	/	**Lab Sample ID:**	131204077-001
PO#:		**Matrix:**	SOIL

Project# : 13110648

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SEMI-VOLATILE ORGANICS - EPA 8270D						Analyst: **MT**
(Prep: SW3545A - 12/5/2013)						
1,1-Biphenyl	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Phenol	**3900**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Naphthalene	**1600**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
2-Methylnaphthalene	**1300**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Acenaphthylene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Acenaphthene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Dibenzofuran	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Fluorene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Phenanthrene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Anthracene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Carbazole	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Di-n-butyl phthalate	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Fluoranthene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Pyrene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benz(a)anthracene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Chrysene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Bis(2-ethylhexyl)phthalate	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Di-n-octyl phthalate	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(b)fluoranthene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(k)fluoranthene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(a)pyrene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Indeno(1,2,3-cd)pyrene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Dibenz(a,h)anthracene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Benzo(g,h,i)perylene	**< 340**	340		µg/Kg-dry	1	12/5/2013 5:34:00 PM
Surr: 2,4,6-Tribromophenol	**44.3**	19.1-99.1		%REC	1	12/5/2013 5:34:00 PM
Surr: 2-Fluorobiphenyl	**53.7**	52.1-126		%REC	1	12/5/2013 5:34:00 PM
Surr: 2-Fluorophenol	**30.4**	25.6-96.3		%REC	1	12/5/2013 5:34:00 PM
Surr: 4-Terphenyl-d14	**67.6**	49.5-137		%REC	1	12/5/2013 5:34:00 PM
Surr: Nitrobenzene-d5	**50.8**	25.8-119		%REC	1	12/5/2013 5:34:00 PM
Surr: Phenol-d5	**36.7**	18.4-101		%REC	1	12/5/2013 5:34:00 PM
MOISURE CONTENT - ASTM D2216						Analyst: **PF**
Percent Moisture	3.9	0.1		wt%	1	12/5/2013

13120407 7

ADK

CHAIN OF CUSTODY RECORD

Pace Analytical Services, Inc.

2190 Technology Drive, Schenectady, NY 12308
Telephone (518) 346-4592 Fax (518) 381-6055
www.pacelabs.com

LRF # 13110648
(LAB USE ONLY)

DISPOSAL REQUIREMENTS: (To be filled in by Client)

- ○ RETURN TO CLIENT
- ● DISPOSAL BY RECEIVING LAB
- ○ ARCHIVAL BY RECEIVING LAB

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

CLIENT (REPORTS TO BE SENT TO): PACE

PROJECT#/PROJECT NAME: 13110648

LOCATION (CITY/STATE) ADDRESS:

PROJECT MANAGER: Kelly Miller

SAMPLED BY: (Please Print)

REQUIRED TURN AROUND TIME: 12/6/2013 Rush (48 Hours)

SAMPLING FIRM:

NAME OF COURIER (IF USED):

ELECTRONIC RESULTS: Kelly.Miller@pacelabs.com

ELECTRONIC RESULTS: Nicole.Johnson@pacelabs.co

ENTER ANALYSIS AND METHOD NUMBER REQUESTED

PRESERVATIVE CODE:
BOTTLE TYPE:
BOTTLE SIZE:

SAMPLE ID	DATE	TIME	MATRIX	GRAB/ COMP	LAB SAMPLE ID (LAB USE ONLY)	NUMBER OF CONTAINERS	8270*							REMARKS:
PILE A - NORTHEAST AREA	11/26/13	14:30	S	COMP	AQ41377	1	X							*See Attached Analyte List

PRESERVATIVE KEY
0 - ICE
1 - HCL
2 - HNO3
3 - H2SO4
4 - NaOH
5 - Zn. Acetate
6 - MeOH
7 - NaHSO4
8 - Other (Na2SO3)

AMBIENT OR CHILLED: TEMP:
RECEIVED BROKEN OR LEAKING: Y N
COC TAPE: Y N
COC DISCREPANCIES: Y N
PROPERLY PRESERVED: Y N
RECVD W/I HOLDING TIMES: Y N

OTHER NOTES: Analytical Report [LEVEL-2] EDD: Excel Standard

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
SIGNATURE	E. Swanhall	[signature]	[signature]			Amanda C. Marrero
PRINTED NAME	E. Swanhall					Amanda C. Marrero
COMPANY	PACE					AES
DATE/TIME	12/4/13	12-4-13	12-4-13 16:20			12-4-13 4:22

1°c; not AES containers; arrived via client

Appendix F

ATLANTIC TESTING LABORATORIES

Syracuse
6085 Court Street Road
Syracuse, NY 13206
(315) 699-5281 (T)
(315) 699-3374 (F)

January 10, 2014

Northern Industrial Holdings, LLC
7144 E. Doubletree Ranch Road, Suite 190
Scottsdale, Arizona 85258

Attn: Mr. John Pacheco

Re: Construction Materials Engineering and Testing Services
Former Oberdorfer Foundry
Dewitt, New York
ATL Report No. ST3469E-01-01-14

Ladies/Gentlemen:

At the request of Mr. John Pacheco, representing Northern Industrial Holdings, LLC, Atlantic Testing Laboratories, Limited (ATL) conducted a cursory laboratory testing program for the purpose of providing preliminary recommendations as to the feasibility for reuse of on-site stockpiled foundry sand as compacted fill below future impervious pavement areas. To accomplish this, on December 18, 2013, ATL collected a total of four (4) samples from various on-site stockpiles. The samples were returned on our facility in Syracuse, NY where Particle Size Analysis of Soils (ASTM D 422), Laboratory Compaction Test (ASTM D 1557-12 Method A Modified), Moisture Content (ASTM D 2216), and Liquid Limit, Plastic Limit, Plasticity Index of Soils (Atterberg Limits) (ASTM D 4318) were performed. A Table of Laboratory Testing is provided below:

Table of Laboratory Testing

Sample No.	Sample Location	Particle Size Analysis of Soils (ASTM D 422)	Laboratory Compaction Test (ASTM D 1557)	Moisture Content (ASTM D 2216)	Atterberg Limits (ASTM D 4318)
ST3469S01	Stockpile A - North	x	x	x	x
ST3469S02	Stockpile A - South	x		x	x
ST3469S03	Stockpiles C and D (Composite)	x		x	x
ST3469S04	Stockpiles B, E and F (Composite)	x		x	x

It is our understanding that approximately 16,000 tons of foundry sand are currently on site. Based on an Aerial Property Plan and our site visit, there appear to be five (5) primary stockpiles of the material on site. The stockpiles are located on the west side of the property, behind the foundry. An Aerial Property Plan is attached.

Based on the laboratory results, the foundry sand appears to be generally uniform between the sampled stockpiles. The test results indicate that the foundry sand is nonplastic and classified under the Unified Soil Classification System (USCS) as poorly graded sand (SP) and Group A-3 under AASHTO. A significant number of sand agglomerations were present within the stockpiled material. Our representative noted agglomerations of approximately twelve inches in diameter during sampling. Copies of the laboratory test results are attached.

The US Department of Transportation Foundry Sand Facts for Civil Engineers (FHWA-IF-04-004) document states that the largest volume of foundry sand is used in geotechnical applications, such as embankments, site development fills, and road bases.

In general, foundry sand can be thought of as a sand replacement for natural sand concerning subgrade fill. It is our opinion that the foundry sand currently on site can be used a subgrade fill at proposed impervious pavement locations. It may be necessary to process, screen or crush residual sand pieces if oversize agglomerations impede placement or compaction activities. Other objectionable material, such as metals, if present, should also be removed. Periodic testing of the foundry sand during placement may be necessary to ensure consistency.

An environmental evaluation of the foundry sand was outside the scope of ATL's services. The environmental aspects of using the foundry sand, as subgrade fill, should be reviewed with the NYSDEC prior to use.

Prior to the placement of any subgrade fill, including foundry sand, it is recommend that the site subsurface conditions be evaluated through a geotechnical investigation program to characterize the subsurface soil and groundwater conditions which may impact future site development. The project design team should develop earthwork specifications that include placement and compaction of the foundry sand.

Please contact our office should you have any questions, or require any additional information.

Sincerely,
ATLANTIC TESTING LABORATORIES, *Limited*

Mark S. Wilbur, P.E
Senior Engineer

MSW/BTB/mw

LEGEND

APPROXIMATE PROPERTY LINE

SS-1 △ COMPOSITE SOIL SAMPLE LOCATION

NOTES:

1. 2009 AERIAL PHOTOGRAPH FROM NYSGIS WEBSITE.
2. ALL LOCATIONS ARE APPROXIMATE.

0 120' 240'

GRAPHIC SCALE

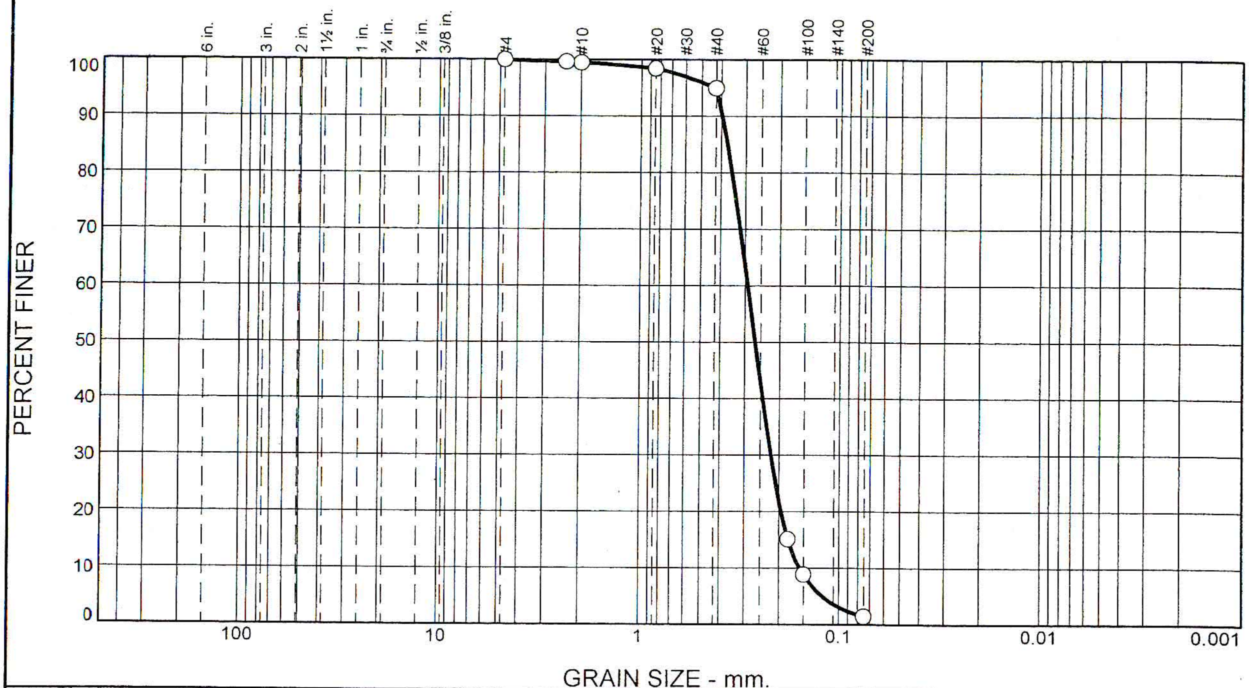
P: BL
9/11/12
SYNAPSE/WIP/OBER 01-10/OBERB02.DWG

synapse SYNAPSE RISK MANAGEMENT, LLC 360 ERIE BLVD. EAST SYRACUSE, NEW YORK 13202	SOLID WASTE CONTROL PLAN OBERDORFER LLC 6259 THOMPSON ROAD SYRACUSE, NEW YORK	**AERIAL PROPERTY PLAN**	PROJECT NO.: OBER 01-10.02 DATE: SEPT. 2012 FIGURE NO.: **2**

FOIL247736

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	4.5	93.5	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC (X)
#4	100.0		
#8	99.7		
#10	99.5		
#20	98.5		
#40	95.0		
#80	15.2		
#100	8.9		
#200	1.5		

* (no specification provided)

Soil Description

Foundry Sand
ASTM D 2216, Received Moisture = 3.7%

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3710 D_{60}= 0.2906 D_{50}= 0.2657
D_{30}= 0.2193 D_{15}= 0.1794 D_{10}= 0.1569
C_u= 1.85 C_c= 1.05

Classification

USCS= SP AASHTO= A-3

Remarks

ASTM D 422 (without Hydrometer)
ASTM D 4318
Sampled by B. Fisher on 12-18-2013

Sample No.: ST3469S01 **Source of Sample:** Onsite
Location: Stockpile A - North **Elev./Depth:** ---

ATLANTIC TESTING LABORATORIES, LIMITED
Syracuse, New York

Client: Northern Industrial Holdings, LLC
Project: Oberdorfer

Report No: ST3469SL-01-12-13 **Date:** 12-20-2013

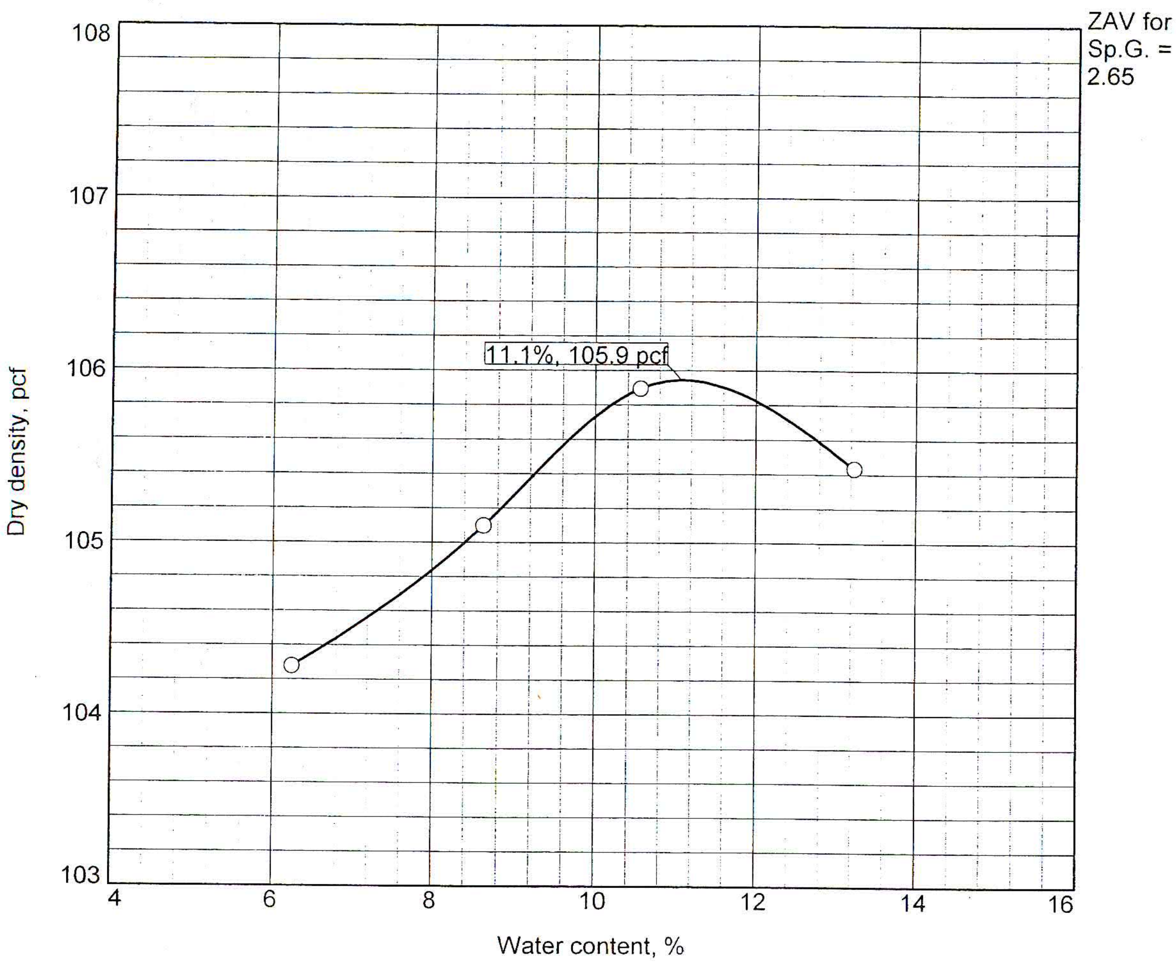
Reviewed by: [signature]

Date: 1-7-14

FOIL247737

ATLANTIC TESTING LABORATORIES

COMPACTION TEST REPORT



Test specification: ASTM D 1557-12 Method A Modified

Elev/ Depth	Classification		Received Moist.	Sp.G.	LL	PL	PI	% > #4
	USCS	AASHTO						
---	SP	A-3	3.7	2.65	NV	NP	NP	0.0

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.9 pcf Optimum moisture = 11.1 %	Foundry Sand ASTM D 2216, Received Moisture = 3.7%

Report No.: ST3469SL-01-12-13 **Client:** Northern Industrial Holdings, LLC
Project: Oberdorfer
Sample No.: ST3469S01 **Source of Sample:** Onsite
Location: Stockpile A - North **Date:** 01-06-2014

ATLANTIC TESTING LABORATORIES, LIMITED

Syracuse, New York

Remarks:
Wet Preparation
Sampled by B. Fisher on December 18, 2013

Rammer: Mechanical
Specific Gravity: Assumed

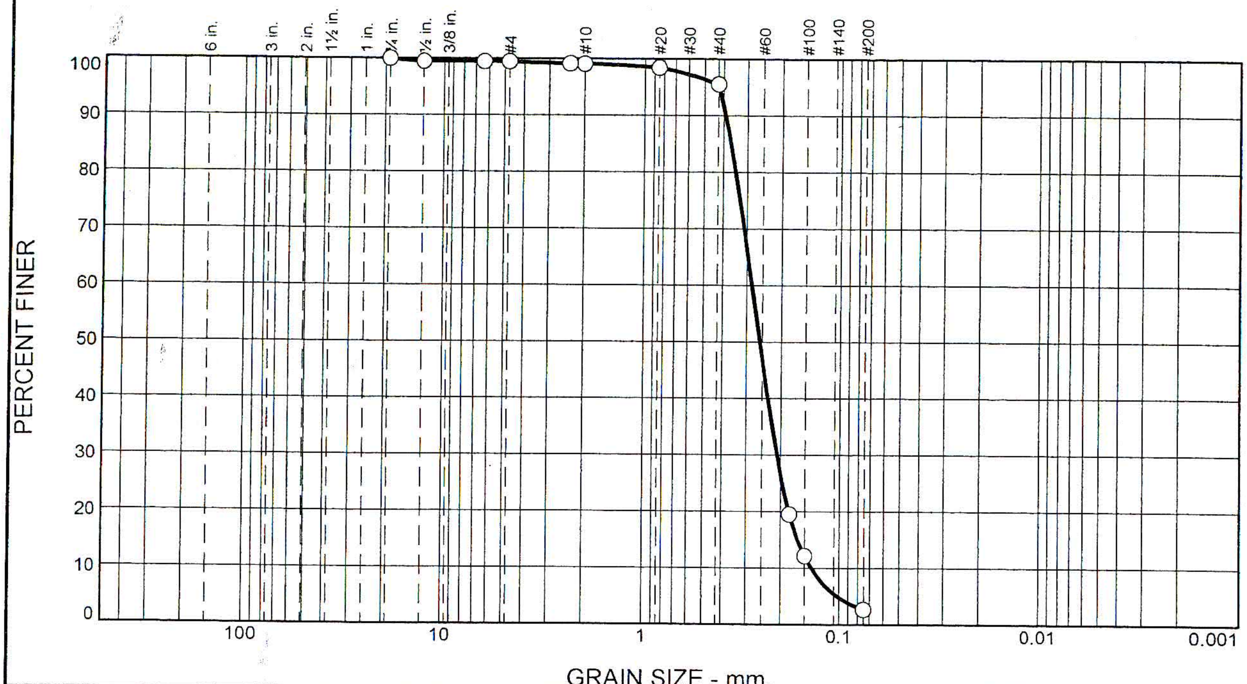
Reviewed by: [signature]

Date: 1-7-14

FOIL247738

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.4	3.5	92.9	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC (X)
3/4	100.0		
1/2	99.5		
1/4	99.5		
#4	99.5		
#8	99.2		
#10	99.1		
#20	98.5		
#40	95.6		
#80	19.5		
#100	12.2		
#200	2.7		

* (no specification provided)

Soil Description

Foundry Sand
ASTM D 2216, Received Moisture = 6.0%

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3649 D_{60}= 0.2822 D_{50}= 0.2566
D_{30}= 0.2084 D_{15}= 0.1633 D_{10}= 0.1380
C_u= 2.04 C_c= 1.12

Classification

USCS= SP AASHTO= A-3

Remarks

ASTM D 422 (without Hydrometer)
ASTM D 4318
Sampled by B. Fisher on 12-18-2013

Sample No.: ST3469S02 **Source of Sample:** Onsite
Location: Stockpile A - South **Elev./Depth:** ---

ATLANTIC TESTING LABORATORIES, LIMITED
Syracuse, New York

Client: Northern Industrial Holdings, LLC
Project: Oberdorfer
Report No: ST3469SL-02-12-13 **Date:** 12-20-2013

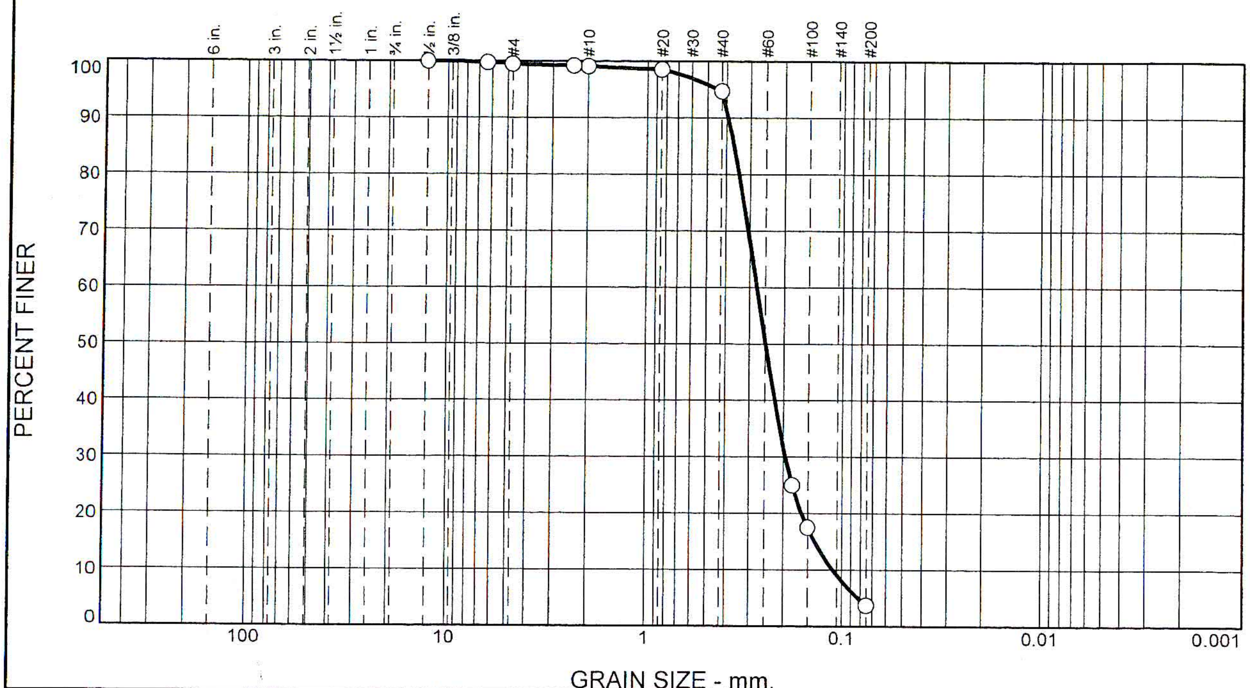
Reviewed by: [signature]

Date: 1-7-14

FOIL247739

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	4.3	91.1	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC (X)
1/2	100.0		
1/4	99.8		
#4	99.6		
#8	99.2		
#10	99.1		
#20	98.6		
#40	94.8		
#80	25.0		
#100	17.5		
#200	3.7		

* (no specification provided)

Soil Description

Foundry Sand
ASTM D 2216, Received Moisture = 10.1%

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3645 D_{60}= 0.2753 D_{50}= 0.2479
D_{30}= 0.1951 D_{15}= 0.1377 D_{10}= 0.1112
C_u= 2.48 C_c= 1.24

Classification

USCS= SP AASHTO= A-3

Remarks

ASTM D 422 (without Hydrometer)
ASTM D 4318
Sampled by B. Fisher on 12-18-2013

Sample No.: ST3469S03 **Source of Sample:** Onsite
Location: Stockpile C & D - Composite **Elev./Depth:** ---

ATLANTIC TESTING LABORATORIES, LIMITED
Syracuse, New York

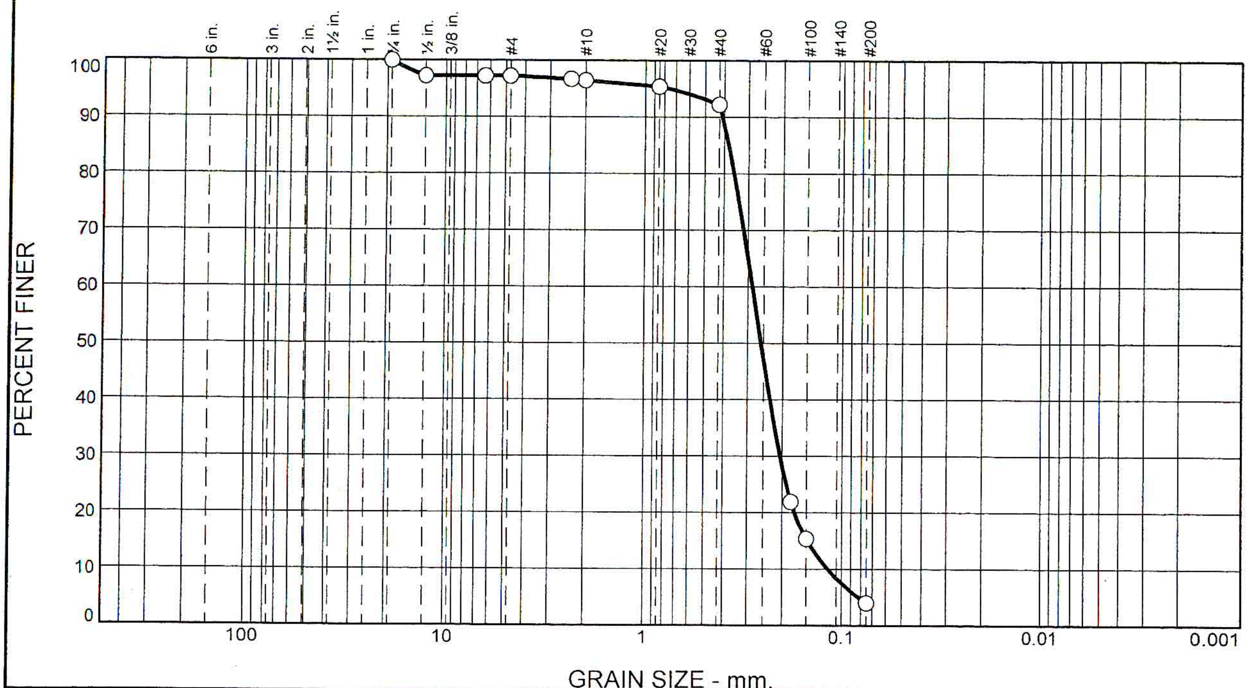
Client: Northern Industrial Holdings, LLC
Project: Oberdorfer
Report No: ST3469SL-03-12-13 **Date:** 12-20-2013

Reviewed by: Mark [signature] Date: 1-7-14

FOIL247740

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	0.8	4.2	88.3	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC (X)
3/4	100.0		
1/2	97.3		
1/4	97.3		
#4	97.3		
#8	96.7		
#10	96.5		
#20	95.4		
#40	92.3		
#80	22.0		
#100	15.4		
#200	4.0		

* (no specification provided)

Soil Description

Foundry Sand
ASTM D 2216, Received Moisture = 6.2%

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3779 D_{60}= 0.2847 D_{50}= 0.2568
D_{30}= 0.2043 D_{15}= 0.1476 D_{10}= 0.1170
C_u= 2.43 C_c= 1.25

Classification

USCS= SP AASHTO= A-3

Remarks

ASTM D 422 (without Hydrometer)
ASTM D 4318
Sampled by B. Fisher on 12-18-2013

Sample No.: ST3469S04 **Source of Sample:** Onsite
Location: Stockpile B, E & F - Composite **Elev./Depth:** ---

ATLANTIC TESTING LABORATORIES, LIMITED Syracuse, New York	**Client:** Northern Industrial Holdings, LLC **Project:** Oberdorfer **Report No:** ST3469SL-04-12-13 **Date:** 12-20-2013

Reviewed by: Mark W[illegible] Date: 1-7-14

FOIL247741

Appendix G

Northern Industrial Holdings - Former Oberdorfer Foundry
Conceptual Planning Services for BUD Petition

6259 Thompson Road, Syracuse, NY 13206
SWBR Project Number: 14090.00

The following volumetric tables are based on three conceptual site planning options selected by Northern Industrial Holdings and a constant of 16,000 tons of existing foundry sand to be reused. It is assumed that further geotechnical engineering and topographic surveys will be conducted prior to actual development to design the precise locations and heights of compacted fill, and to confirm the suitability of the subsoils to receive compacted fill material. A compaction test report from Atlantic Testing Laboratories, dated January 10, 2014, indicates the foundry sand has a 105.9 PCF density when compacted 100%. Typical engineering practices specify subgrade fills to be compacted to 95%. SWBR will use a number of 100.6 PCF in the conceptual planning of foundry site that may be utilized on-site. Please note that all numbers are approximate.

Option 1: Big Box Anchor Store with Commercial and Restaurant Parcels
Option 2: Hotel Anchor Site with Commercial and Restaurant Parcels
Option 3: Multifamily Residential with Commercial and Restaurant Parcels

Existing Sand Volume: 16,000 Ton = 32,000,000 lb
32,000,000 lb / 100.6 PCF = 318,092 CF

Concept Number	Area of Pavement (SF)	Volume of Sand at 1.00 FT of Fill (CF)	Remaining Sand to be Discharged Off-Site (CF)	Volume of Sand at 2.00 FT of Fill (CF)	Remaining Sand to be Discharged Off-Site (CF)
1	404,159	404,159	None	808,318	None
2	332,536	332,536	None	665,072	None
3	214,661	214,661	103,431	429,322	None

Key:
PCF = Pounds per Cubic Foot
SF = Square Feet
CF = Cubic Feet
FT = Feet
lb = Pounds

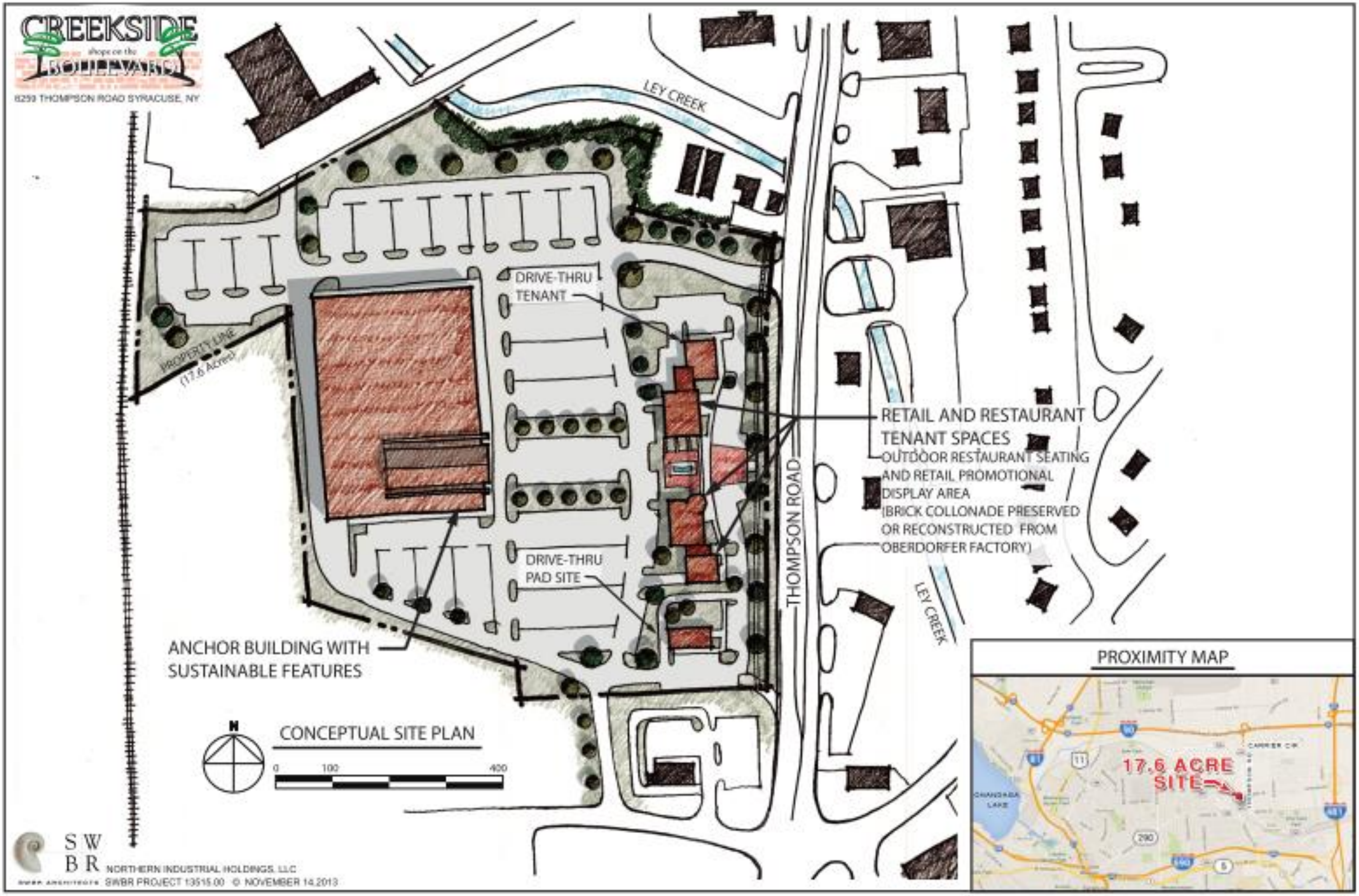
15-Jan-14
Matt Lupiani, SWBR Project Manager

SWBR ARCHITECTS

Appendix H

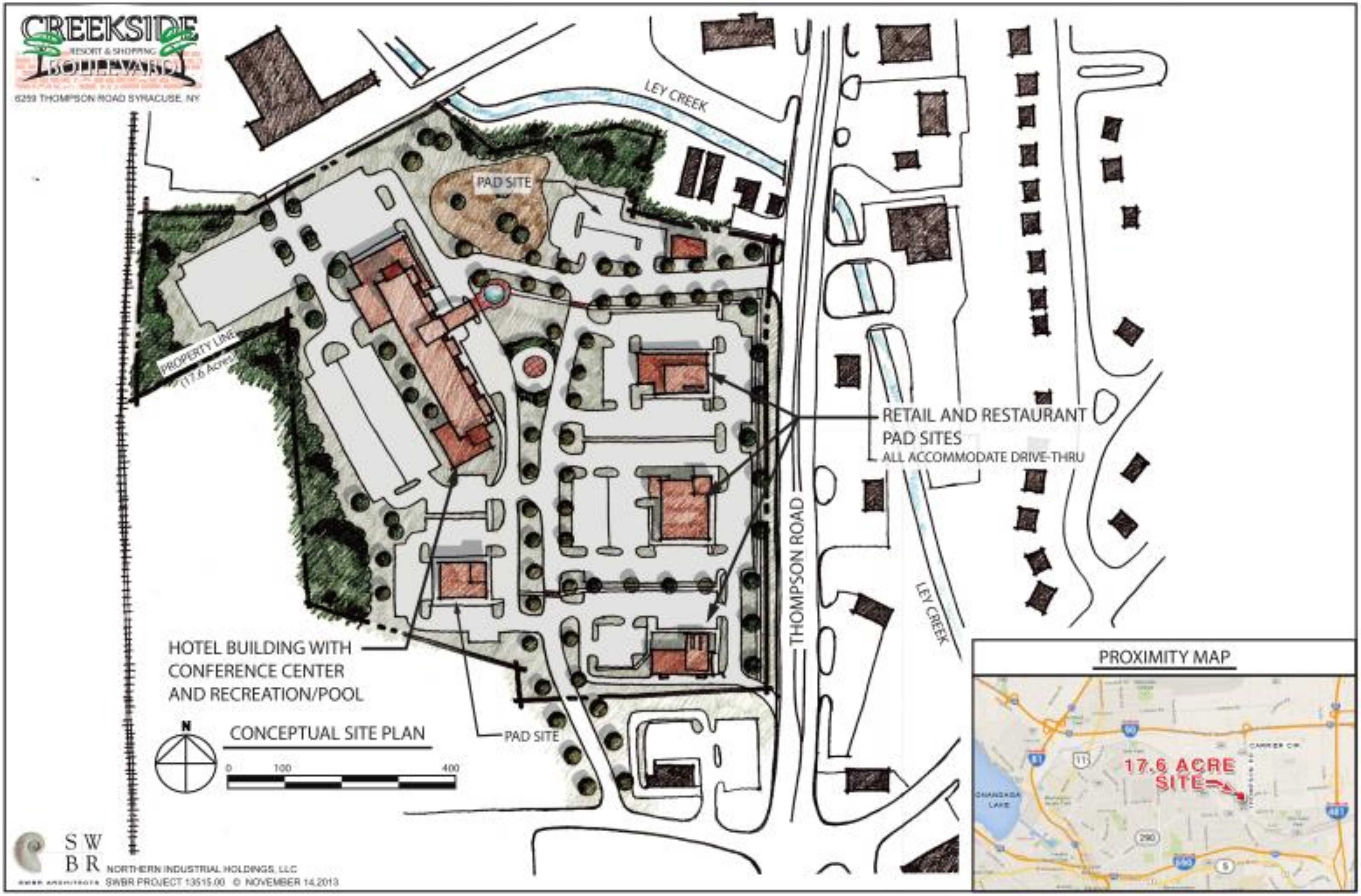

CREEKSIDE
shops on the
BOULEVARD
6259 THOMPSON ROAD SYRACUSE, NY
ANCHOR BUILDING WITH SUSTAINABLE FEATURES
LEY CREEK
DRIVE-THRU TENANT (DRIVE-THRU LOOP HIDDEN BY BUILDING)
DRIVE-THRU PAD SITE
RETAIL AND RESTAURANT TENANT SPACES
OUTDOOR RESTAURANT SEATING AND RETAIL PROMOTIONAL DISPLAY AREA (BRICK COLLONADE PRESERVED OR RECONSTRUCTED FROM OBERDORFER FACTORY)
RETAIL AND RESTAURANT TENANT SPACES
PROPERTY LINE (17.6 Acres)
THOMPSON ROAD
LEY CREEK
CONCEPTUAL RENDERING
VIEW FROM THOMPSON ROAD LOOKING WEST
SWBR
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13515.00 © NOVEMBER 14,2013
CONCEPTUAL SITE AERIAL PERSPECTIVE

FOIL247745


CREEKSIDE
shops on the
BOULEVARD
6259 THOMPSON ROAD SYRACUSE, NY
LEY CREEK
DRIVE-THRU TENANT
RETAIL AND RESTAURANT TENANT SPACES
OUTDOOR RESTAURANT SEATING AND RETAIL PROMOTIONAL DISPLAY AREA (BRICK COLLONADE PRESERVED OR RECONSTRUCTED FROM OBERDORFER FACTORY)
PROPERTY LINE (17.6 Acres)
THOMPSON ROAD
DRIVE-THRU PAD SITE
LEY CREEK
ANCHOR BUILDING WITH SUSTAINABLE FEATURES
N
CONCEPTUAL SITE PLAN
0
100
400
PROXIMITY MAP
17.6 ACRE SITE
CARRIER CIR
ONONDAGA LAKE
SW
BR
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13515.00 © NOVEMBER 14,2013


CREEKSIDE
RESORT & SHOPPING
BOULEVARD
6269 THOMPSON ROAD SYRACUSE, NY
HOTEL BUILDING WITH
CONFERENCE CENTER
AND RECREATION/POOL
LEY CREEK
PAD SITE
COMMERCIAL
PAD SITE
RETAIL AND RESTAURANT
PAD SITES
ALL ACCOMMODATE DRIVE-THRU
DRIVE-THRU
PAD SITE
THOMPSON ROAD
PROPERTY LINE
(17.6 Acres)
LEY CREEK
CONCEPTUAL RENDERING
VIEW FROM THOMPSON ROAD LOOKING WEST
S W
B R
SWBR ARCHITECTS
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13516.00 © NOVEMBER 14,2013
CONCEPTUAL SITE AERIAL PERSPECTIVE

FOIL247747



CREEKSIDE
RESORT & SHOPPING
BOULEVARD
6259 THOMPSON ROAD SYRACUSE, NY
LEY CREEK
PAD SITE
PROPERTY LINE
(17.6 Acres)
RETAIL AND RESTAURANT
PAD SITES
ALL ACCOMMODATE DRIVE-THRU
THOMPSON ROAD
LEY CREEK
HOTEL BUILDING WITH
CONFERENCE CENTER
AND RECREATION/POOL
N
CONCEPTUAL SITE PLAN
0
100
400
PAD SITE
PROXIMITY MAP
17.6 ACRE
SITE
ONONDAGA LAKE
CARRIER CIR
SWBR
SWBR ARCHITECTS
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13515.00 © NOVEMBER 14,2013

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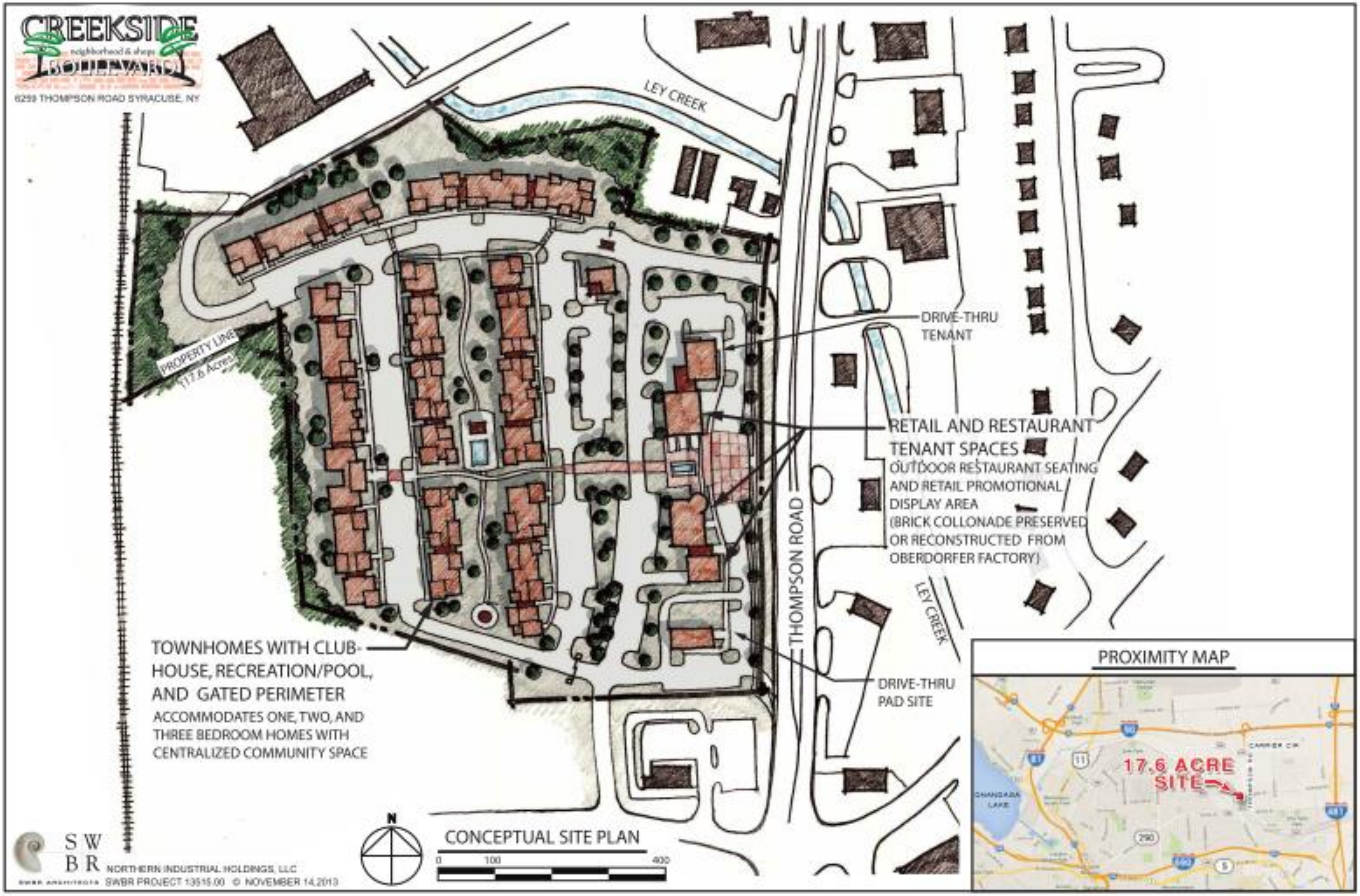
CREEKSIDE
neighborhood & shops
BOULEVARD
6259 THOMPSON ROAD SYRACUSE, NY
TOWNHOMES WITH CLUB-HOUSE, RECREATION/POOL, AND GATED PERIMETER
ACCOMMODATES ONE, TWO, AND THREE BEDROOM HOMES WITH CENTRALIZED COMMUNITY SPACE
LEY CREEK
RETAIL AND RESTAURANT TENANT SPACES
DRIVE-THRU TENANT (DRIVE-THRU LOOP HIDDEN BY BUILDING)
OUTDOOR RESTAURANT SEATING AND RETAIL PROMOTIONAL DISPLAY AREA (BRICK COLLONADE PRESERVED OR RECONSTRUCTED FROM OBERDORFER FACTORY)
RETAIL AND RESTAURANT TENANT SPACES
DRIVE-THRU PAD SITE
PROPERTY LINE (17.6 Acres)
THOMPSON ROAD
LEY CREEK
CONCEPTUAL RENDERING
VIEW FROM THOMPSON ROAD LOOKING WEST
N
CONCEPTUAL SITE AERIAL PERSPECTIVE
SWBR
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13515.00 © NOVEMBER 14,2013

FOIL247749



CREEKSIDE
neighborhood & shops
BOULEVARD
6259 THOMPSON ROAD SYRACUSE, NY
LEY CREEK
PROPERTY LINE
(17.6 Acres)
DRIVE-THRU
TENANT
RETAIL AND RESTAURANT
TENANT SPACES
OUTDOOR RESTAURANT SEATING
AND RETAIL PROMOTIONAL
DISPLAY AREA
(BRICK COLLONADE PRESERVED
OR RECONSTRUCTED FROM
OBERDORFER FACTORY)
THOMPSON ROAD
LEY CREEK
DRIVE-THRU
PAD SITE
TOWNHOMES WITH CLUB-
HOUSE, RECREATION/POOL,
AND GATED PERIMETER
ACCOMMODATES ONE, TWO, AND
THREE BEDROOM HOMES WITH
CENTRALIZED COMMUNITY SPACE
N
CONCEPTUAL SITE PLAN
0 100 400
SWBR
SWBR ARCHITECTS
NORTHERN INDUSTRIAL HOLDINGS, LLC
SWBR PROJECT 13515.00 © NOVEMBER 14,2013
PROXIMITY MAP
17.6 ACRE
SITE
CARRIER CIR
ONONDAGA
LAKE